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FROM

*W. T. Walsh*

*March 21, 1902.*





Commonwealth of Massachusetts, Supreme Judicial Court.

Hampden, ss.

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HOLYOKE WATER POWER COMPANY,  
PETITIONER,

v.

CITY OF HOLYOKE.

BEFORE

EVERETT C. BUMPUS, JAMES E. COTTER, AND  
EDMUND K. TURNER,

*Commissioners appointed by the Supreme Judicial Court.*

---

APPEARANCES:

*For Petitioner:* FRANK P. GOULDING AND WILLIAM H. BROOKS.

*For Respondent:* NATHAN MATTHEWS, JR., AND A. L. GREEN.

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BY

FRANK H. BURT, F. G. MORRIS, WM. L. HASKEL, W. C. GRAHAM, AND E. L. DAVIS.

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## TENTH HEARING.—Continued.

### ARGUMENT ON ADMISSIBILITY OF EVIDENCE OF EARNING CAPACITY.

Mr. MATTHEWS. Mr. Chairman and gentlemen of the Commission: We desire to address a few considerations to the Court on the admissibility of the earning capacity of these plants.

The position of the City upon this question is that the gross income of the Company from the operation of either plant, and also the net income of the Company from the operation of either plant, are inadmissible for any purpose, but that the cost of operating either plant is admissible.

The latter fact — namely, the cost of operating the plants — we claim to be admissible as tending to show the present value of the plants for the purposes of their use, for the purposes which they were intended to accomplish. A plant that can be operated for so much per annum is worth more for the purposes of its use than one that would cost twice that amount annually for a given output. And, therefore, the cost of operating the plants, having reference not to the income of the Company, but to the cost of the finished product, which in this case is gas and electricity, is material as bearing upon the fair market value of the property and plant for the purposes of its use. But earnings, gross or net, are something wholly different. They are dependent upon the business of the Company, upon its right to do business, upon the price which it is permitted by law or otherwise to charge, upon its franchises in the public streets, and upon any other franchises or rights that it may have and need for the purpose of selling or distributing gas or electricity. Gross earnings are dependent upon the business of

the Company, upon its franchises, and good will; and, of course, the same is true of net earnings, which are simply the difference between the gross income and the operating expenses.

The position of the City is that the gross or net income of the Company is inadmissible either as an element of value or to enhance the value, or as evidence of value, that is, for any purpose. We submit that it is impossible to use the actual earnings or the earning capacity of a plant as evidence of value without using it as an element of value or for the purpose of enhancing the value of the plant considered apart from its earning capacity. There is no conceivable use to which the evidence can be put, except to enhance the value of something; and what is the thing thus enhanced in value? That thing must be the plant considered in its physical aspects, features, and relations; and the moment you introduce anything in evidence which does not relate solely to that physical plant, to the buildings, the machinery, and the rest of the physical features of the plant, the moment you take into account business or earnings, you necessarily use that evidence, if you use it at all, for the purpose of enhancing the value of the plant considered in its structural and physical features. And that being the only purpose for which earnings can be used after they once come into the case as evidence, we maintain they should be rigidly excluded.

Your Honors can decide this question as matter of law upon one of two different theories. You can assume, as will be argued by the other side, that the statute under which the Commission is sitting provides in substance for a taking by eminent domain, and that therefore the rules of law applicable to cases of eminent domain are applicable to this case. That is one way in which this question can present itself to your minds; an inaccurate way, we think, but still one which we cannot afford to ignore. The other way in which the matter may be presented to the minds of the Commission is to consider the statute not as equivalent to a taking

by eminent domain, in substance or in effect, but simply as a compulsory purchase by the City at the option or election of a private corporation. In that aspect of the case the statute does not contemplate a taking *in invitum* against the Company, but on the contrary contemplates action *in invitum* against the City. In that aspect of the law the property of the City, to wit, its money, is taken against its will for the benefit of the Holyoke Water Power Company. In that aspect of the statute the Holyoke Water Power Company is the instigator of these proceedings and is in a position analogous to that of a town or city which itself is taking property for public uses. On this theory the Commission will have simply to consider the meaning of the statute itself, and will not be aided in its determination of the meaning of the purchase clauses of the Act of 1893 by any reliance upon the rules applicable in cases of eminent domain.

I will therefore discuss this question upon both of those assumptions, considering on the one hand the case as if it were a taking by eminent domain,—that is to say, as if it were a case where the City was taking the property of the Holyoke Water Power Company as in ordinary condemnation proceedings; and on the other hand, upon the assumption that this is not in any sense a taking by eminent domain, but rather a proceeding forced upon the City by and for the benefit of a private corporation.

And I hope to be able to satisfy your Honors that upon either theory evidence of earnings, gross or net, is inadmissible for any purpose.

In the first place as to the alleged similarity between this proceeding and a taking of the Company's property by eminent domain, and as to the rules of law applicable in such a case with reference to evidence of earnings. If this were a case of eminent domain, if the City of Holyoke, for instance, had been authorized by law to take the gas and electric light plants of the Holyoke Water Power Company by eminent domain, the same rules of law would be applicable to the measure of value that obtain in proceedings for the condem-

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nation of property, for the extension or widening or laying out of highways, public parks, or other similar undertakings.

Now in such cases, where the property is the property of a corporation, the question is still further affected by this consideration, — namely, whether or not the franchises of the Company are included in the taking. If the franchises of the corporation are included, as is very frequently the case, particularly in taking of water works, they have to be valued; and in obtaining the value of the franchises of the Company it would be necessary, we concede, for the Commission to take the earnings of the Company into account. The franchises of a corporation enjoying privileges in public ways are necessary to its earning money. A gas or electric light company cannot earn a dollar in ordinary cases unless it has a franchise to distribute gas or electricity, as the case may be, through pipes and poles constructed in the public ways. I said ordinarily because it is conceivable that no such franchise may exist. There are one or two instances in this State of corporations which manufacture but do not distribute; but we are concerned here with a corporation which not only manufactures but distributes, and there would be no market for its product if it did not have a franchise to distribute gas and electricity to the inhabitants of Holyoke by means of pipes and wires constructed in the public streets.

If this were a taking by eminent domain, and if the City took not only the physical and tangible property of the corporation used in its gas business and its electric light business, but also its franchises, its rights in the streets, and all the other privileges which it avails itself of for the purpose of using its tangible property, then the value of those franchises would have to be taken into account by this Commission; and we concede that in that event the earnings, gross or net, and the earning capacity of these plants, would be admissible. Not, however, for the purpose of capitalizing them at a given rate per annum, but for what they might actually be worth in cash. We should concede that earnings

would have some use in assisting the Commission in determining what valuation to place upon the franchises of the Company as distinguished from its physical and tangible plant. It is important even in the hypothetical case that I have suggested,—namely, a taking of the Company's franchises and property,—that the distinction between earnings as evidence, that is, as an aid or assistance to the Court in determining the value of the franchise, and earnings used for the purpose of capitalization, should be taken into account. Earnings might, perhaps, be taken into account for the purpose of capitalizing them in one possible contingency,—namely, if the Company had an exclusive and perpetual monopoly; and one or two instances of valuing a franchise by capitalizing earnings are, I think, to be found in the books, predicated upon the possession by the Company of an exclusive and perpetual franchise. But where the franchise is not exclusive, where it is not a legal monopoly, or where it is limited in time, then the earnings are not admissible for capitalizing at a given rate, because that involves the assumption that those earnings are to continue forever.

In such a case earnings are admissible as an aid in helping the Court to reach the value of a franchise, and only for that purpose. As to the manner in which earnings are to be used, as to the effect to be given to the evidence of earnings in such a case, we would refer to the Long Island Water Supply case in 166 U. S. 685. That was a case which came from the New York Court of Appeals to the United States Supreme Court; and both courts declined to capitalize the earnings, although the franchise of the Company was taken.

MR. COTTER. Did that case come up from Judge Pray?

MR. MATTHEWS. It went up from the Court of Appeals of New York. In that case,—and I desire to dwell upon that case for a moment as showing the most that can be done with earnings, assuming that they are admissible, for the purpose of aiding the Court in the determination of the value of a franchise,—the Court declined to capitalize the earnings, but said it would take the amount that the Company was earning

into account. We will not assume, they said, that the Company will earn forever this amount and then capitalize it at any given rate of interest, but we will assume that their franchise may be revoked, not being perpetual in terms; we will assume that competition may be introduced, the franchise not being exclusive; we will take all those considerations into account, and then we will do the best we can in fixing the value of that franchise upon the basis of what business men of ordinary prudence would be apt to pay for that franchise in excess of the value of the physical plant.

There is a franchise case in the Massachusetts Reports, the case of the West Springfield Aqueduct Company against the town of West Springfield (167 Mass. 128), where a somewhat similar question was discussed. The Long Island Water Supply case, however, contains the best discussion. The method in which franchises shall be valued, and the extent to which earnings shall be taken into account when the Court is valuing a franchise, it seems to me are best stated there. Applying the principles of that case to this one, if the City of Holyoke had taken by eminent domain the franchise rights of the Holyoke Water Power Company to distribute gas and electricity in the city of Holyoke by means of pipes and wires laid in the streets, we should assume that evidence of earnings and earning capacity was admissible, not for the purpose of capitalizing, but to enable the Court to say what in its judgment was the fair cash or market value of the franchise, rights, and privileges of the Company as distinguished from the fair cash or market value of its tangible property.

Now, still upon the assumption that this is a taking by eminent domain or its equivalent of the company's property, the first point I desire to call to the attention of the Commission is that the *franchises* of the Company are not taken by the City. The corporation loses them; but they cease, and do not pass to the City. That is not a mere technical distinction. It is a very important one to the City of Holyoke. The City, after it has purchased this plant, is

not in the position it would be if it had the Company's franchise to do an electric lighting and gas business in the city of Holyoke. It doesn't get that franchise or anything like as valuable a franchise. It gets a different sort of franchise, and one of far less value. The franchise that the City of Holyoke gets to do a gas and electric light business in the city of Holyoke is derived by independent legislation, by the statute of 1891 and its amendments; and if the Commission will read Section 10 of that act it will see what the franchise is that is bestowed upon the City.

THE CHAIRMAN. Won't you state what it is?

MR. MATTHEWS. I will. The principal point of distinction is that whereas the Holyoke Water Power Company is not limited in the disposition of its income in any manner, the City of Holyoke cannot use its surplus income, if there is any, for general municipal purposes, for the purposes of the municipality as a corporation. That is a very important distinction. A similar limitation exists in the water franchises that were granted to the City of Boston and some other municipalities at the beginning of the water legislation of the State. They were not permitted to utilize their surplus water income for general municipal purposes. In recent years that limitation has in many cases been abolished; and now municipalities operating water works are quite generally permitted to use their surplus income, if there is any, for any municipal purpose. That cannot be done by the City of Holyoke if it procures this electric light and gas plant. That is one distinction. Another important limitation upon the use that can be made by the City of Holyoke of these properties, when it has acquired them, follows from the provision of the municipal lighting law of 1891, that the City shall set aside annually 5 per cent. of the cost of the plant as a depreciation fund, or rather that an amount equivalent to 5 per cent. per annum on the cost of the plant shall be deducted from the gross receipts and applied to depreciation, and that—and this is the point that I call the particular attention of the Commission to—the price charged to the consumer shall

be increased, if necessary, to such a point as will enable the City to earn not only the operating cost, and the sinking fund and interest requirements on the debt created to procure the plant, but also 5 per cent. upon the cost of the plant. Now what does that mean? It means the imposition upon the City of Holyoke of practically 10 per cent. of the cost of the plant for fixed charges, as they are called, for interest, sinking fund requirements and depreciation, in addition to the cost to operate the plant; that the prices cannot be reduced by the City below a point sufficient to realize those amounts; and that, if at any time they happen to be less, they can be increased by application to the courts. Now the Holyoke Water Power Company can do what it pleases with its income. It can operate its plants like the New York corporations which we have heard of, and pay out in dividend the entire difference between gross income and operating expenses. It can operate them in any manner it sees fit; it can lay aside a sinking fund or not; it can lay up a depreciation fund or not. In other words it can do what it pleases, just as you or I could if we owned a plant of this description. The city of Holyoke cannot.

Other differences might be pointed out, but I will confine myself to those which seem to me the most important. In other words the franchises which the City obtains are different from those possessed by the Company; they are less liberal and therefore less valuable; and they do not emanate from the Company, but come from the legislature direct.

The franchises of the Holyoke Water Power Company cease and determine under Section 15 of the Act of 1891, and do not pass to the City of Holyoke. This Commission has no right to include them as one of the things that are to be conveyed or as one of the things that are to be valued. The Company comes into this litigation having voluntarily elected to surrender its franchises; and these thereupon cease and determine, and are not a factor in the case. Not only are all the franchises of the Company thrown out of consideration,



but so also are all considerations necessarily involved in the franchises of the Company, that is, all the elements and facts which go to make up franchise values as distinguished from property values.

Thus, even if we are to consider this case as a taking by eminent domain, it is not one of those cases where franchises are taken or are to be valued. It is rather a case where property is taken unencumbered and unaccompanied by franchises. And what is the rule of law applicable to a taking of property under a statute of eminent domain with respect to earnings? The universal rule as we understand it, is this: you can take the value of the property for the purposes of its use, or for any use to which it is adapted, and you can take into account its rent or its rental value as property; but you cannot take into account the profits or earnings of a business that may be carried on upon the premises or by means of the property. The distinction is sharp and definite between rent, which is something which grows out of the property itself and which is independent of management, personal skill, good will, business, or franchises; and business profits or earnings, which are dependent, not merely upon the value of the property for the purposes of its use, but upon other considerations,—such as the franchise of the Company, the skill with which the plant and property is managed, the business which the Company is able to secure, its good will, its ability to maintain prices, the absence of competition, and a thousand other considerations, having no inseparable connection with the property itself. The point has been expressly decided in the case of *Cobb v. Boston*, 109 Mass. 438. In this case the Court said it was not competent to introduce in condemnation proceedings evidence of the profits derived by the owner or occupant from a business carried on upon the premises. On the other hand, there is a long line of cases holding that the rents of real estate are admissible. Rent is something which flows from the property itself as real estate. It is land at the common law, and it is therefore an element of value, and one of the best tests of value that can be devised; but the profits

that are made in the business conducted on the premises are to be excluded.

THE CHAIRMAN. Do you maintain that no question has come up as to whether income derived by a water or gas company, or any other quasi public company, is to be treated like that?

MR. MATTHEWS. There is no similarity between a gas or electric light company and a water supply company. In almost all cases where water property has been taken the franchise was included; but there are cases that must be familiar to your Honor,—the Kansas City water case, the English street railway cases, and the Newburyport water case,—involving questions somewhat similar to those presented by this case.

THE CHAIRMAN. You were just speaking of profits in the business, which could not be admitted, but you say land could be. Why is not the income of a water company or an electric light company of the nature of rent?

MR. MATTHEWS. There is every difference between water and gas. A gas company is a manufacturing concern; a water company is not. Gas pipes are taxed, under our decisions, as machinery used in manufacturing. Water pipes are not. As to water, the question has arisen, although it has never been, I admit, thoroughly threshed out, whether it, as distinguished from a mere manufactured commodity, is not something in the nature of a *profit à prendre*, an incident of that soil, and whether as such it may not be treated and valued as land. We think there is every distinction between water, or anything else that can fairly be said in law to grow out of land and to be inseparably connected with some particular parcel, area or district, and electricity or gas, which is a mere manufactured commodity and can be made anywhere.

There is no land from which the gas or electricity proceeds or grows. Whereas water is not a manufactured commodity in any sense: it proceeds out of the land itself; and the distinction between the two has already been taken by this Court in the cases on taxation.

I was referring to *Cobb v. Boston* and that line of cases, which hold that even in a case where property is taken by eminent domain, but where franchises are not included, the profits or earnings derived from the business carried on by means of the property taken cannot be introduced as evidence of the value of the property itself. We are not aware of any adjudicated case in which the earnings or profits of business as distinguished from the rents of real estate have been admitted as evidence of the value of property taken by eminent domain. If there are any such authorities, there can be no question that the learning and industry of the counsel for the Holyoke Water Power Company will be able to produce them. I think that if counsel who are quite famous in this Commonwealth in litigations similar to this are unable to cite authorities holding that the earnings or profits of business, manufacturing or otherwise, can be taken into account in valuing property taken by eminent domain, the Court can safely assume that there are no such authorities.

Two cases were referred to this morning: *Fales v. Easthampton* and *Maynard v. Northampton*. Those cases hold, if I remember them correctly, the general proposition that we concede, that the value of property can be shown for any purpose for which it is adapted, whether it be the purpose for which it is being used or some other and more valuable purpose; but they do not authorize the introduction of business profits, past, present or future, as an element of value, or as evidence of value. We do not believe that counsel for the Company can cite a single adjudicated case holding that the earnings or profits of a business can be taken into account as evidence of the value of land, buildings, and machinery taken by eminent domain. I ought, perhaps, to make one qualification of that statement, that a statute of eminent domain may of course authorize the thing to be done in terms, and I have in mind one case where that was done. That is, the profits of the business carried on were, by the terms of the statute, to be taken into account. The legislature of course could pass a law which would authorize the

granting of extraordinary damages of the kind in question, and has done so in one case, at least, in the case of the Metropolitan Water Act, by which certain land owners are given extraordinary damages; but in the absence of express statutory provision we maintain with great confidence that there is absolutely no judicial authority for the introduction of earnings, gross or net, actual or prospective, for any purpose whatsoever, in cases of property condemned by eminent domain, unaccompanied by a transfer of franchises.

And now I would like to draw the attention of the Commission to the question whether this be a taking by eminent domain or not. I have already argued that earnings could not be received as evidence of value even in a case of eminent domain; but is this a taking by eminent domain? It was asserted by the learned counsel for the Holyoke Water Power Company in his opening that the municipal lighting law of 1891 provided for the "municipalization" of electric light and gas plants. We deny the statement. Nothing of the sort was intended by the municipal lighting law of 1891. The scope and object of that law was simply to permit towns and cities to engage in the business for themselves, not to acquire existing plants. The legislature provided that towns and cities should have the right to light their streets with gas or electricity, and incidentally to sell gas and electricity to such of their inhabitants as chose to be consumers. There are no vested rights in gas and electric light companies making such legislation unconstitutional. It has been adjudicated from the earliest days of municipal ownership in this country, by a long series of decisions covering fifty years or more, that a town or city can be authorized by statute to engage in any such undertaking as water works, gas works, electric lighting, street railways, or any other public undertaking involving the use of the public streets, in open competition with existing corporations, without the payment of a dollar of compensation to any existing company. That is the law as we understand it, as determined by a long line of adjudicated cases, covering the whole field of public enterprises of this sort. It has been questioned by the

United States Circuit Judge for this district, in the case that was brought in behalf of the Newburyport Water Company against the City of Newburyport, and which is now pending in the United States Circuit Court. That doctrine was questioned by him; but we maintain that it is established conclusively by a long line of undisputed decisions; and we cannot believe that his decision will be upheld by the Supreme Court or even by the Circuit Court.

This being so, and the legislature having the right to authorize towns and cities in Massachusetts to establish plants for gas or electric lighting, it provided in addition that if there was an existing gas company or electric lighting company in the town at the time, then at the election of the Company the City should be compelled to buy a certain specified portion of its property. The purchase clauses of the Act of 1891 and of the amendatory Act of 1893 were in no sense a substitute for the damage clauses that would have to be inserted in a statute providing for the exercise of the power of eminent domain, in order to make such a statute constitutional, but were in the nature of a voluntary gift or privilege to the corporations. I will not weary the Commission with a citation of all of the authorities, or any of them, in fact, that have laid down the proposition, that no such clause is necessary in an act of this character; for, as I said, the proposition has never been disputed except by the United States judge referred to. It has been affirmed by the Supreme Court of this State in the Wakefield case and the Newburyport water case. Our Court has said that such a statute is not the equivalent of a taking by eminent domain, but that the purchase clauses of it are in the nature of a privilege to the company.

The purchase clauses of the Act of 1893, being in the nature of a grant or privilege to a private corporation, and not in the nature of compensation necessary under a statute of eminent domain, are to be construed strictly against the corporation, and liberally in favor of the City and the State. From the days of the Charles River Bridge case, the doctrine of strict construction has been applied by every court in this

country, federal and State, to every kind of privilege given to a private corporation, whether it was a charter, a grant, a deed, a contract, or any collateral privilege whatsoever; and the purchase clause of the municipal lighting law being in the nature of a privilege to a private corporation, is therefore to be construed strictly against it. In other words, nothing is to be read into that clause by implication that is not found in express words, or is not to be implied as a matter of necessity from the words used. If there is a doubt in the minds of the Commission as to what the proper construction of that clause is, the doubt must be resolved against the Company. At all points of the argument, and whenever any question arises as to the proper meaning to be attributed to that clause, the presumption is in favor of the City of Holyoke, and against the Holyoke Water Power Company.

We now approach the particular phraseology of the act in question, having shown, I hope, to the satisfaction of the Commission, first, that this case is not to be assimilated to a taking under the power of eminent domain; secondly, that no question of franchise is involved; and, thirdly, that any doubt as to the construction to be placed upon the act is to be resolved against the Company and in favor of the City. It remains to consider what the special language of the act is, and what inferences the Commission may fairly draw from the words used, from the general scope and purpose of the statute, and from any other consideration that may be proper to be taken into account in construing the law.

I think perhaps it will be best at this point to state briefly our theory of the measure of value which is to be applied by the Commission in this case under the provisions of section 5 of the Act of 1893. We maintain that the value of the property of the Holyoke Water Power Company is its value for the purposes of its use,—that is, for the purpose of furnishing gas and electricity to the inhabitants of Holyoke, unembarrassed and unenhanced and unaffected by any and all considerations based upon or involving the earnings, earning capacity, franchises, good will, or business of the Company;

and that the Commission is to take the physical plant itself, the land, the buildings, and the machinery, and to ascertain as best it can what that physical plant is worth for the purposes of its use thus defined. In determining the value of the physical plant for the purposes of its use, the Commission is entitled to evidence of considerable latitude, we think. There is probably no market value in the strictest sense of the word for a gas or electric light plant stripped of its franchises, and considered independent of its earnings. There is, doubtless, a market value within the meaning of that expression as used in the act; because, if there is none, the Commission cannot award anything. But that value is not market value in the ordinary meaning. That is to say, such property is not bought and sold in the open market. Stocks of gas and electric light companies are bought and sold in the open market, and they have, therefore, an ordinary market value; but the market value of stocks in gas and electric light companies is predicated, of course, upon the earnings of the company, that is, upon the divisible profits, upon the dividends, and those in turn are based upon the earning capacity of the property, upon its franchises, its business, its good will, and all the other considerations which are to be excluded from this case. It being, therefore the fact that this property is not like a machine, or a patent medicine, or anything else that is sold in the open market and for which we could get daily quotations, and it having therefore probably no market value in that sense; it follows that the Commission is obliged, in order to reach the real value of the property, to resort to other tests.

One of the tests commonly resorted to in such cases is the test of reproduction; that is, what it will cost to reproduce the plant. Not what it would cost simply to buy the different articles of machinery now in operation plus the value of the land and the cost to erect the buildings; not simply the mere aggregate of those three items, but their aggregate, plus the cost of putting them together, and of bringing the plant into the condition of a going concern. Interest during construction, engineering expenses, fair allowances for those contingencies of

installation which are the inevitable accompaniment of every work of this character, the cost of canvassing for subscriptions, — not the value of the subscription list when obtained, as representing so much business or profits, but the cost of sending people out to see what the probable consumption of gas and electricity in the city in question will be, so that the engineers or managers in charge of the installation of the plant may know how much to lay out,—these are all to be included in the reproductive cost of the plant. The cost of reproducing the plant as a going concern in good running order, capable of producing the amount of gas and electricity likely to be called for in the community in question, is what we understand to be the reproductive cost of a gas or electric light plant; and that we think admissible as an aid to the Commission in determining the fair market value of the property for the purposes of its use.

We do not, however, contend that reproductive cost is an absolute measure of value. We consider it to be in the nature of an aid to the Court, and not as the sole basis of valuation. It may well be that the cost of reproducing a gas plant as a going concern would for some reason or other be far in excess of the fair market value of that plant for the purposes of its use. Here we come to the consideration of a fact which I trust the Commission will always bear in mind throughout their deliberations in this case; and that is, that this property is to be valued for the purposes of its use. Not, merely for its use by the City of Holyoke. That is a phrase that is found in some of the water acts that have been mentioned, but not in this case. It is to be valued for the purposes of its use; not necessarily for the purposes of its use by the City of Holyoke, alone, but generally for the purposes for which the plant is intended to be used,—that is, for furnishing gas and electricity to the inhabitants of Holyoke.

Now in applying the test of reproductive cost to the value of a gas or an electric light plant for the purposes of its use,—that is, for the purpose of supplying a certain quantity of gas and a given amount of electrical energy to a certain community,—we must not only consider the cost to reproduce the plant,



but we must also take into account the efficiency of the plant and the economy with which it can be operated. It may be that the plant under consideration is inefficient in its machinery or expensive in its operation, owing to the presence of dilapidated buildings, old and worn out machinery, or machinery of a type not suited to the efficient and economical production of gas and electricity. I do not say now that such is the condition of these plants, or either of them, although we shall introduce evidence upon that point. But if it is, it is plain that reproductive cost is not a measure of the fair market value of the plant for the purposes of its use. If, instead of attempting to reassemble units similar to those which are found in the present plant, and thus to reproduce the thing itself, we should seek to establish a plant of equal capacity and efficiency, not necessarily made up of the same units which compose the present plant, we might get a plant much more efficient in its operation, much more economical to run, than the existing plant; and the value of such a plant would be much greater than the value of the present plant measured by the cost of reproduction.

But before touching upon the aid that is to be gained by the Court from considering the cost of a new plant of equal capacity and efficiency, I ought to have said a word about depreciation as it affects the existing plant. By "cost of reproduction" I do not wish to be understood as meaning the mere cost to replace the identical land, buildings and machinery, new, to-day, because that would give an excessive value, so far as the buildings and the machinery are concerned, if they are in any particular affected by use or age. The subject of depreciation is a very difficult one. There is very little unanimity of opinion on the subject among electrical or gas engineers, and there is the widest diversity of treatment on the part of the managers of gas and electric light companies respecting the great item of depreciation. I will not take up the time of the Commission by entering into that subject at length now. I will simply state that by "reproductive cost" I mean the cost to reproduce as an assembled plant, as a going concern, the buildings and

machinery that are now in existence, less any deduction that ought fairly to be made on account of use or wear or age.

Now, coming again to another and more valuable test than reproductive cost, much assistance is to be gained by the Court by considering what a new plant of equal capacity and efficiency would cost. By that we do not mean an ideal, theoretic plant, that nobody ever built or saw, but simply such a plant as would be installed to-day if there were none in the city of Holyoke; such a plant as gas manufacturers and gas engineers would build to do the business that might fairly be expected in the city of Holyoke; and the sort of electric light plant that electrical engineers would install for furnishing the number of lights and the amount of power that can be supplied by the Holyoke Water Power Company from its electric light station.

It may be that the cost of such a plant, new, would be less than the cost to reproduce the present plant as a going concern. And, having used that expression again, I will say that of course the cost of the new plant must be figured as a going concern. To the cost of the structures, the machinery, and the land and the buildings, must be added a fair and reasonable percentage or allowance to cover the cost of assembling the different units, interest during construction, engineering, and other contingencies, and all the other items which go to put a plant in a condition fit to do business.

Having obtained that figure, from expert testimony, we have a basis of comparison. We have, on the one hand, the cost to reproduce the present plant as a going concern. We have, on the other hand, the cost to build a plant new and install it as a going concern. Those two prices will differ, of course. One may be greater than the other. We cannot tell in advance which would be the case. If the existing plant is itself a new plant, or relatively speaking, a new plant, and a simple plant, all put in at the same time, the cost of the new plant which I have assumed,—that is, a wholly new plant,—might not differ materially from the cost to reproduce the present plant.

Take an illustration from the evidence in this case. The water gas plant, which was furnished by Humphreys & Glasgow to the Holyoke Water Power Company, cost \$14,000 two years ago. Probably if we were to put in evidence of what the cost of such a plant would be, new, to-day, it would be practically the same. There would not be any material difference in cost, and none in value except a small deduction for depreciation. On the other hand, the value of electric light dynamos bought in 1887, and running ever since, might differ very materially from the cost of putting in a new and modern electric light plant such as would be installed by electrical engineers in the city of Holyoke if there were no plant there now.

We have, therefore, in the cost of a new plant a measure or standard of comparison. We have the reproductive cost of the present plant on the one hand, and the cost of a new plant on the other hand. If that new plant is of equal capacity and equal efficiency, it follows, we maintain, necessarily and mathematically, that that is the maximum value of the present plant. For the question presents itself to the Commission thus: what could the owners of the present plant fairly expect to sell it for to a man or a corporation who had the opportunity either to buy that plant or to install a new plant of his own? Or, conversely, what could a purchaser, having occasion to enter the gas and electric light business in the City of Holyoke, fairly and reasonably be expected to pay for the present plant of the Holyoke Water Power Company, rather than procure and install an entirely new plant?

The prospective purchaser is in this position. He has a franchise to light the town; he has the right to do business there; but he hasn't any plant. He wants a plant. Here is a plant in site, a going plant, capable of doing the business, and that plant is for sale. What will he do? The first thing that he would do would be to employ gas and electrical engineers, and have them figure out for him what would be the cost to purchase and install a new gas plant and a new electric light plant, according to the present theories of gas and electric

lighting practice, and then he would compare that plant with the existing plant from the standpoint of efficiency. And I say it follows logically, mathematically, necessarily, that if the new plant is properly laid out, if it is of equal capacity and efficiency with the existing plant, then the maximum value of the existing plant is the cost of the new plant as an assembled, going concern. That is all that he could afford to pay for it as a business proposition; and that is all he would pay for it, if he were outside of a lunatic asylum. The cost of the new plant represents, therefore, the maximum value of the present plant.

But it may be far in excess of the value of the present plant. The reproductive cost of the present plant may be very much less than that of the new plant, and therefore the value and the cost of the new plant would be greater by reason of its greater capacity and efficiency. If the new plant could be operated for less than the existing plant, then the existing plant must be worth less than the new plant; and the value of the existing plant would be found by taking the cost of the new plant and deducting from it a sum representing, as nearly as the Commission can arrive at it, the difference in value between the two. In that way you get at the price which the owner of the existing plant could fairly expect to get from a willing purchaser, and the price which the purchaser could fairly afford as a business proposition to pay for the existing plant, rather than buy a new and independent one; and that we conceive to be the best test of the fair market value of the plants in question for the purposes of valuation under the municipal lighting law of 1893.

We do not submit this test as absolutely conclusive. It is to be taken as evidence only. But we submit it as the best test of all that can be suggested. We think that the Commission ought to take into account not only the cost of a new plant, but the deduction from that cost that ought fairly to be made by reason of the greater efficiency and economy of operation of the new plant as compared with the present plant. That we conceive to be the fair market value, or the best test of the fair market value of a gas plant or an electric light plant for the purpose of furnishing gas or electricity to the inhabitants of

the city of Holyoke; that is, for the purposes of its use, as the expression reads in the municipal lighting law.

If the act had simply said that at the option of the Company the City should purchase the gas plant and the electric light plant at their fair market value for the purposes of their use, and had stopped there, without further words of qualification or limitation, the rules and aids that I have suggested would apply; and it would not be competent for the Commission to go outside those rules or aids and seek the assistance of considerations based on earnings, franchises, good will, or any similar fact. But, as the act is drawn, it is apparent that the legislature wanted to be on the safe side of this question. The legislature of 1893 did not intend to leave any doubt, did not intend to leave any loophole for argument even, that earnings or earning capacity, past, present, or future, that franchises, good will, or business, or considerations based on any of those facts, could be taken into account by the Commission or the Court. And therefore we find an express provision that the value of the plant and property is not to be enhanced on account of future earning capacity, on account of good will, or on account of exclusive privileges in the streets.

What is the effect of those limitations? Simply, according to our view of this statute, to emphasize the duty of the Court to rigidly ignore and to exclude all evidence of earnings, all evidence of business, good will, or franchises.

I will take up the first expression first. The value of the property is not to be enhanced on account of future earning capacity. It will be argued that *expressio unius exclusio alterius*, and that because future earning capacity is expressly excluded, present earning capacity is included and allowed. The answer to that contention is first that "future earning capacity" includes present earning capacity. What is future earning capacity stated by itself? It is the ability of the corporation to earn money in the future, and if present earnings are used for any purpose it can only be for the purpose of assuming that they are to continue. Present earnings thus become evidence of future earning capacity. The act does not

say "increased future earning capacity." If it did, there would be opportunity for argument that the legislature intended to distinguish between that future earning capacity, which is simply a continuation of present earning capacity, and the increased earnings that might be assumed for the future and predicated upon an assumed future growth of business. But there is no such distinction made in the act. Therefore, if this act stood by itself, if we had no other act to compare it with, it would be difficult for the Court to allow evidence of present earning capacity in the face of the deliberate exclusion of future earning capacity, because they are necessarily the same thing.

A similar phrase is found in the Newburyport Water Act and in the Gloucester Water Act; and the decision of the Supreme Court in the Newburyport water case was that the Commission was correct in not allowing anything on account of present earnings. Some of the statements in the opinion of the Court may be difficult to reconcile with any consistent theory of the meaning of that expression. I will not attempt to discuss that point now, but will simply state that, as we understand the Newburyport water case, the Court decided that the Commission was right in not taking into account, in making up its award, the present earning capacity or present earnings of the Company.

But there is something in this case, if the Court please, that was not present in the Newburyport water case, and is not present in the Gloucester case, to aid the Court in construing the statute; and that is an express repeal of a previously existing permission to include present earning capacity. We have here the strongest possible evidence, based upon the deliberate action of the Massachusetts legislature, that it did not intend the Commission to take present earning capacity into account. It is competent, in all discussions concerning the construction or interpretation of statutes, to refer to other statutes *in paria materia*, particularly those of which the statute in question is an amendment. If we consider the statute of 1893, in connection with the prior statute of which this one was an amendment, we find that in 1891 the legislature did permit the Commission to take present earning capacity into account,

and that in 1893 that provision was repealed. We maintain that these acts of the legislature can have no sensible meaning whatever, except this: that the legislature of 1893 did not intend that the Commission should take present earning capacity into account. If it did, why did it change the law? If the intention of the legislature of 1893 was that the Commission should take present earning capacity into account, why did it strike those words out? Why didn't it let them alone and leave them there? We maintain that there is no answer to that question.

It has been suggested that the words "present earning capacity" were surplusage in the Act of 1891, and therefore when the legislature struck them out in 1893 it simply intended to correct a clerical error in the prior act. My experience is that the Massachusetts legislature is not in the practice of passing laws for the purpose of correcting errors of phraseology perpetrated by preceding legislatures. The argument seems to me to be distinctly the other way,—that the only fair, sensible or possible interpretation of the act of the legislature of 1893 in striking those words out was that it did not intend to have the Commission take present earnings into account. But the argument itself, that the permission to include present earning capacity found in the Act of 1891 was mere surplusage and in effect simply stated the law as it stood, is antagonistic to the whole argument that I have addressed to your Honors this morning, and if that be sound this contention is unsound.

I pass therefore from this point, emphasizing again what seems to me to be the strongest argument; perhaps not the strongest in law, because there are others which are equally conclusive, but the strongest argument of those calculated to influence a common-sense view of this statute: that when the legislature struck out a permission to include present earnings it meant to strike it out and not to leave it there.

But that is not all. The Commission is to value this plant without enhancement on account of good will. There is no word "future" there at all. It is not future good-will, it is

the good will of the Company. - And what is the good will of the Company? The good will of the Company is its business. That has been judicially determined by the highest court in England, where the word "good will" in a statute similar to this was held to mean the business of the company based on earnings. Good will being excluded by the statute, the Court held that the commissioners appointed to value the property must exclude the earnings of the company. There is a good deal of law on that point. There is very little law upon the meaning of the words "future earning capacity," but there is a good deal on the meaning of "good will."

By this expression we contend is meant the number of subscriptions, the number of customers, the amount paid by them to the company; that is, the earnings or the business of the corporation. My point is, that good will means earnings as applied to a corporation of this sort.

I will refer the Commission to "Story on Partnership."

THE CHAIRMAN. You won't say that the Court in *Edmunds v. Boston* took that view?

MR. MATTHEWS. Good will was excluded in that case. What was meant by that was business earnings.

In *Bradford v. Peckham*, 9 R. I. 250, good will was judicially defined as being the probability that old customers will continue to go to the old places. That is to say, good will in that case was defined as the probability that the business would continue.

A still more apposite definition of the meaning of good will is to be found in *Bell v. Ellis*, 33 Cal. 620, where that expression is defined as the probability that the business will continue in the future as in the past.

The Commission will pardon me, perhaps, for citing authorities on this point, when I have not on others, because this is a point, I believe, that has not been thoroughly discussed in the cases on these statutes, although the *London Tramway* case, 2 Q. B. 189, is cited by Judge Holmes in the *Newburyport water* case. The statement there is that good will is only "the capacity of making future profits." That was the case



where, under a statute authorizing the commissioners to appraise a street railway property excluding good will, the highest English court held that the evidence of earnings should be excluded.

In applying the doctrine of those cases to the case at bar it is important for the Commission to bear in mind that it is bound to exclude, not only future good will, but good will of all kinds; and that, we maintain, covers earnings present as well as future.

THE CHAIRMAN. In the Newburyport case Mr. Morse gave a definition of good will which you will find in the report. I have forgotten now just what it was, but we did not agree with him on it. I do not remember what the definition was. I thought perhaps you gentlemen would like to look at it, that is all. We did not take much stock in good will in that case. That is, none of the counsel or commissioners seemed to attach much importance to good will. Your definition may be correct, but I know it was not argued in that way there.

MR. MATTHEWS. That is why I refer to these cases in detail. It seems to me equally conclusive with the other limiting phrases, and equally important, as involving necessarily earnings. As good will is to be excluded, earnings must be also.

Now there is another thing to be excluded in this case, and that is the privileges in the streets. Those are the franchises of the Company. There is a whole mass of authority as to what a franchise is and as to how it is to be valued, and there are numerous cases in this State, principally arising in disputes about taxation all tending to show that when the franchises of a company are to be valued, its earnings, as distinguished from the tangible and physical plant, are to be valued or taken into account or used as evidence of value; but, when the plant and property alone is to be valued, all evidence of earnings is to be shut out, they being necessarily, in a case of companies like this one, dependent upon the franchise to occupy the streets.

At this point I might suggest that we do not understand that

the Company has shown, or can show, a legal right to do an electric or gas business in the streets of Holyoke. As stated before, we do not know whether that failure, if it be a failure, on their part, goes to the whole of this case or not. A somewhat similar question was presented to the Court in the Wakefield case. There the gas company of Wakefield, the property of which was to be valued under the law of 1891, had a legal right to do a gas and electric light business in the city, but there was some defect in the pole locations,—in the locations granted by the Board of Aldermen for the erection of poles. The Court in that case held that that defect did not go to the substance of the case, and that the commissioners should value the property notwithstanding that defect. The defects that we allege in this case are very much more serious. They go, not to the right of the Holyoke Water Power Company to maintain some particular pole, but to its right to do the business of gas and electric lighting in the city of Holyoke. We maintain that it has not complied with the statutes, a compliance with which was necessary to give it the legal right to do an electric light or a gas business in the city of Holyoke. We shall argue, possibly, that that defect is so serious and radical as to necessitate a decision by the Court that the City is not bound to take any of this property or pay for it. But, in any event, it must be plain that the Commission and the Court cannot take into account franchises or earnings based on franchises, when those franchises themselves are non-existent. It may be that the Commission is still bound, applying the rule laid down in the Wakefield case, to value the tangible and physical property in sight; but it cannot, we should maintain, upon any conceivable theory, take in earnings as evidence, when the Company has no legal right to do the business.

We therefore contend not only that the general law, regardless of any express limitation, would exclude all evidence of earnings, for every purpose, but we find three distinct limiting and qualifying phrases in this act, each one of which necessarily compels the Court to throw out all evidence of earnings.

Mr. COTTER. When you say the franchise does not exist, do you mean by reason of the failure of the Company to comply with the statute?

Mr. MATTHEWS. Yes, sir. There are several decisions in our courts that a franchise to occupy the streets, where the company has not complied with the law, is not a franchise. We can use that in two ways.

THE CHAIRMAN. Perhaps you had better cite those cases later.

Mr. MATTHEWS. Yes, sir. I am not arguing my case at length; I am simply outlining the argument. We shall make this point,—that if, on any conceivable theory of the law of 1893, there were a legal opportunity for the Commission to take the earnings of the Company into account, that opportunity does not exist in this case, because those earnings are based on franchises which have no legal existence or validity.

It may be said that the three limiting phrases that I have referred to as being conclusive upon this point, although perhaps no more conclusive than the statute itself without those limitations would be, are not co-extensive with my argument, because the statute does not say in words that they shall expressly be excluded, but merely that the value of the property shall not be enhanced on account of them. We maintain, in respect to that expression, that it necessarily means that they shall not be taken into account at all; because if they are taken into account for any purpose, and used to any extent, it can only be for the purpose and to the extent of increasing the value of the plant and property itself; that is, of enhancing the structural or reproductive value by considerations based upon earning capacity, good will, or franchises in the streets. To say that earnings can be taken into account as evidence of present value, and that this will not be using them to enhance the value of the physical plant, is nothing but a juggle of words. The question for your Honors to consider is perhaps not so much whether this evidence goes in, but what to do with it after it is in. What use are you going to put it to? What are you going to do with the thirty odd thousand

dollars a year of earning capacity which may be shown by one of these plants? If you do anything with it, if you allow it to influence your award to the extent of a dollar above the value of the physical plant as it stands, you are using it to enhance the value of the property. We submit there is no escape from this conclusion, and that if the evidence cannot be introduced to enhance the value it cannot be introduced to affect value.

That, may it please the Commission, is in substance our theory of the law affecting this case. There are a great many collateral and minor points which may arise; but I have only attempted to outline our argument. It will be made more fully, of course, at the proper time.

There is one point which is collateral, but not unimportant, which is not immediately connected with what I have been saying, but which I would like, with the permission of the Commission, to advert to at this point. The Commission is not only to pass upon the value of the property which is to be sold by the corporation and purchased by the City, but it is also to determine whether that property is suitable for the purposes of its use or not; that is, suitable for the manufacture and distribution of gas and electricity to the inhabitants of the City of Holyoke or not. The Commission is also to determine whether, in respect to any item of property, the City, in using it, would be at a disadvantage with the Company. The Commission has three duties to perform, as we understand this law. It must not only value the physical plant, the land, buildings and machinery, wholly irrespective and regardless of earnings, franchises and good will; but it must also determine whether any of that property is suitable for the purposes of its use and whether in the use of any of it the City would be at a disadvantage as compared with the Company.

I do not know that there will be much contention in this branch of the case as to any item but that of water power and the machinery that goes with it. In respect to the proposed lease of water power which the Company wishes to saddle upon the City, we shall contend that that water power,

taken under the terms upon which it is offered, is absolutely unsuited to this plant, if it is to be used for furnishing electricity to the inhabitants of Holyoke. Water power is an excellent thing to run an electric light plant by if you only pay \$4,500 a year for it; and that is all that the Holyoke Water Power Company has put for it in its annual accounts. Water power is an excellent thing to run an electric light plant by at \$4,500 a year, when you are only obliged to resort to steam for six days per annum. We would like water power on those terms, on the same terms that they have been reporting under oath for a series of years, in compliance with statute law, to the Gas Commission of this State. But is that the proposition that they make to us? They want us, gentlemen, to pay, not \$4,500 a year, but \$24,000 a year for this same water power! And they will not permit us to run the plant by water for 360 days out of 365, having to resort to steam for the five or six remaining days only, but propose to compel us to resort to steam for over one hundred days per annum. If those be the facts, if any such state of facts should appear to your Honors,—and a large part of them have appeared already,—then we shall ask the Commission to throw the water power out of this case absolutely and for good, as wholly unsuited to the operation of this electric light plant.

We shall ask its exclusion for another reason, too: for the reason that the City would be at a disadvantage in comparison with the Company, in the use of water power. The Company has it for 360 days in the year. We are only going to have it for about 250 days, and on the remaining one hundred odd days we have got to resort to steam. We shall show that it is going to cost a great deal more to run a plant in that way than the way it is run at the present time, irrespective of the increase from \$4,500 to \$24,000 for water power. The Company has the control of the water. It can allow the plant to be run on Sundays by water if it pleases; but it does not propose to do the same thing for us. It proposes to shut us off on Sundays, legal holidays, and all other days in the year when the surplus or non-permanent supply is withheld from the

mills. In other words, the City of Holyoke, if it buys this electric plant and water power, is going to be at a disadvantage in its use as compared with the Holyoke Water Power Company.

For those two reasons, then, that the water power at the price they offer it, or at a price anywhere near the sum they ask, is unsuited for the operation of an electric light station; and, secondly, that the City would be at a disadvantage as compared with the Company in respect to its use,—for those two reasons we shall ask the Commission to throw the water power out of the case entirely, and with that will go the water machinery. That will leave simply the electric light station and the steam plant.

THE CHAIRMAN. Mr. Goulding?

Mr. GOULDING. Does the Commission desire to hear me upon the question that is submitted, which is whether this evidence is admissible, subject to the final disposition of the Court at the close of the case? If they do I will address myself to it.

THE CHAIRMAN. We shall admit the evidence.

Mr. GOULDING. I do not wish to argue it, then, at the present time.

THE CHAIRMAN. We shall admit it, as I tried to say earlier this morning, and determine its application hereafter.

Mr. GOULDING. I do not care, may it please your Honors, to make a dress rehearsal of my closing argument at this point or any other.

Mr. MATTHEWS. You have not made your opening argument, even. Under the law—

Mr. GOULDING. There is nothing in the argument I care to reply to.

Mr. MATTHEWS. We ought to have the law upon which these gentlemen rely before we make our closing argument, or else to have the question finally decided now. I do not understand that, under the arrangement upon which the case is being tried, they can withhold their whole argument on this vital question—

Mr. GOULDING. We stated our argument in our opening.

Mr. MATTHEWS. — until they make their closing argument.

Mr. GOULDING. I do not believe there is power in this court or anywhere else to require counsel at intervals to make an extended argument upon the whole proposition of their case. We have opened our case satisfactorily to ourselves. There is absolutely nothing in the gentleman's argument that is not perfectly easy to reply to here and now, if it were necessary; but I do not propose to make a reply for no purpose whatever. My friend is very confident; he says things follow mathematically and all that. There is a difference between following mathematically and following Matthew-matically.

Mr. MATTHEWS. The question, if your Honors please, is this: whether, in view of the way in which the admissibility of evidence of earnings is left, the Commission will not require the counsel for the Company to furnish their authorities before they make their closing argument in this case. I supposed they were going to do it; but I judge now from Brother Goulding's remarks that he does not propose to do so until he makes his final argument.

Mr. GOULDING. I will furnish my friend with all the authorities I propose to cite in the close. I think we have already indicated, and we shall indicate as we go along, what our general proposition is.

THE CHAIRMAN. I do not think that we should enter into that discussion.

Mr. MATTHEWS. As long as it is understood that they exchange authorities with us —

THE CHAIRMAN. Yes.

Mr. MATTHEWS. — a reasonable time before the closing argument, that is all we want.

THE CHAIRMAN. That the Commissioners would ask counsel to do.

## CHARLES H. NETTLETON, resumed.

By Mr. BROOKS.

*Q.* Mr. Nettleton, I desire to repeat the question that I asked you some time ago. Assuming that the net present earning capacity of this plant is the sum of \$33,632 per annum, and assuming that there is the present opportunity for a present increase that you have already testified to, what do you say in round numbers is the present fair market value of this gas plant of the Holyoke Water Power Company?

THE CHAIRMAN. That is objected to and admitted subject to the respondent's exception; their rights are saved.

Mr. GREEN. Note our exception to that.

*A.* I would like to correct my previous testimony in regard to the increase before answering that, if I may.

*Q.* Certainly. *A.* I was asked what I thought the present opportunity afforded for increase of business; I answered 40 per cent. What I had in mind was the increase sent out in feet. That was the thing that was in my mind. I would like to add to that 40 per cent. in output in feet and 30 per cent. in dollars.

*Q.* Well. *A.* Now with that correction I would like to say that I consider the value of the plant with the additions that you have named \$819,000.

*Q.* That is the present fair market value, as I understand?

*A.* That I believe to be the present fair market value of the plant under the conditions that you have named.

*Q.* You mean by "under the conditions" making those two assumptions? *A.* Yes, sir.

*Q.* That I have made. Mr. Nettleton, whether or not there are gates connected with this gas business? *A.* There are a few, I believe.

*Q.* What are they? What is their utility? *A.* For closing off the supply of gas in a main for various purposes.

*Q.* Whether or not that is a very modern appliance? *A.*



It is not a customary appliance, so far as I know. Excuse me I want to qualify that. It is not customary to put in a large number of gates; I think it is customary to put in a few gates.

*Q.* And whether or not this gas plant has connected with it gates in excess of the number usually used? *A.* I don't know, sir.

*Q.* You cannot say. What, in your opinion, is the effect of those gates; whether advantageous or injurious? *A.* It adds very little to the value of the plant. There may be circumstances where they would be very desirable.

*Q.* Take this plant; whether or not they are, in your opinion, very desirable there? *A.* I am not familiar with their locations.

*Q.* Not knowing the location of the gates you cannot say, Mr. Nettleton? *A.* I cannot.

*Q.* Very well; I will pass from that. What do you say with reference to the location of the plant itself? *A.* It is very well located.

*Q.* And in what respects particularly well located? *A.* In being near to the centre of the consumption, and yet enough to one side so as to avoid all question of a nuisance.

*Q.* And with reference to the railroad facilities — did you notice those? *A.* Yes, sir, I should think they were very good indeed.

*Cross-examination.*

By Mr. MATTHEWS.

*Q.* What experience do you say you had had in constructing gas works? *A.* In constructing gas works — that includes the laying out, I presume?

*Q.* Yes, building. *A.* At Mt. Vernon, N. Y., somewhere in the '80's — I cannot give the exact date — it became necessary to build a new plant. I laid that out, and it was built according to my plans. I did not have the supervision of that except occasionally. There was a superintendent there on the ground. At Derby Conn., where I have been since 1871, we had a comparatively small plant. That has been enlarged

since that time very materially, and it has been entirely under my supervision and under my direction. At the present time I am in charge of building a plant in Torrington, which is entirely according to plans furnished by me and includes the whole plant.

*Q.* How large a plant was that at Mt. Vernon? *A.* How large was that at that time?

*Q.* Yes, how large was it when you built it new? *A.* It was an 8-inch plant; four benches with six retorts; full depth regenerator.

*Q.* What was the daily capacity of the plant? *A.* At that time?

*Q.* Yes. *A.* That is gone from me. It would be pure guess-work, sir. It was small; I agree to that.

*Q.* Smaller than that of the Holyoke plant? *A.* Yes, sir.

*Q.* Very much smaller? *A.* I think so. If you will allow me one moment, perhaps I can refresh myself.

*Q.* What was the population of the town, do you remember? *A.* At that time?

*Q.* Yes. *A.* I should think—I am giving you my best judgment—from 12,000 to 15,000.

*Q.* Do you think it was as large as that? *A.* I am inclined to think so, yes, sir. It was after the elevated roads had been built and travel was setting in that direction.

*Q.* What State is Mt. Vernon in? *A.* New York.

*Q.* What year was this plant built in? *A.* I cannot tell you. It was somewhere in the 80's.

*Q.* Somewhere in the 80's? I thought you said in the 70's. *A.* I went there in 1870.

*Q.* You went to Mt. Vernon in 1870? *A.* Yes, sir. That is where I started in the gas business.

*Q.* You abandoned the old plant and built a new one? *A.* The old plant was abandoned, yes, sir. It was run until we got the new one finished.

*Q.* And then it was entirely abandoned? *A.* Entirely abandoned, all except the holders. The holders were not abandoned.

*Q.* The holders were not abandoned? *A.* If I gave the impression that we built new holders, I correct that. We did not build new holders at that time.

*Q.* All you did then was to put in new benches, wasn't it? *A.* Oh, no; a coal shed, which was built in the shape a "coal pocket," with an elevator; a "stage" retort house, four benches of six retorts each; the adjoining boiler room, with the boiler room on the level with the stage floor, and the condenser house with the apparatus inside. I am mistaken. The new purifying house had been built previously to that, and was off to one side.

*Q.* Then you built the retort house and the coal shed, then? *A.* And condenser house.

*Q.* And the condensing house? *A.* Yes.

*Q.* But the holders had been built before, and also the purifying house? *A.* Yes, sir.

*Q.* You did not lay a new system of mains at that time, did you? *A.* Oh, no, they were laying constantly every year. But, understand, I was not directly in charge at that time; I was the secretary of the company.

*Q.* You were superintendent of the company at the time? *A.* No, sir.

*Q.* Oh, you were not? *A.* I started as superintendent in 1870. I left there in 1871, but remained as secretary of the company until it was sold out in 1890.

*Q.* You did not build an entirely new gas works for Mt. Vernon, then, did you? *A.* No, sir.

*Q.* And you have not built an entirely new gas plant for Derby? *A.* I think not. I shouldn't think it would be fair to say so.

*Q.* All that you have done there is to superintend the extensions that have been made since you have been connected with the company? *A.* I had considerable to do with the superintendence in the first erection. I went there before there was a pipe laid, and only the lot bought. I have been superintendent of the company ever since. The works were laid out at Derby by another man, but I had a good deal to do with their erection at that time.

*Q.* But you would not say that you had charge of the installation of that plant? *A.* No, sir, I would not.

*Q.* Now what are you doing down at Torrington? *A.* I have charge.

*Q.* What is the nature of the plant that you are building there? *A.* What kind of a plant? It is a gas plant.

*Q.* A gas plant? *A.* Yes, sir.

*Q.* Are you building a works and distribution system both? *A.* Yes, sir.

*Q.* How large is the place? *A.* 11,000 people.

*Q.* Torrington, Conn.? *A.* Yes, sir.

*Q.* What is the capacity of the works going to be? *A.* I am putting in two 5-ft. sets of water gas plant. Each set is guaranteed to produce — I forget the guarantee, whether it is 250,000 or 300,000; I will say 250,000, not less than that. The purifiers will pass 200,000 feet a day. It is built on the theory that it is possible to send out 200,000 feet.

*Q.* How many miles of mains are you going to lay? *A.* I don't know, sir. They started with the idea of laying seven. My impression is that the orders amount to more than that.

*Q.* And that is all the experience that you have had in building gas works? *A.* That is all. But may I add — ?

*Q.* Certainly. *A.* — that the plant at Derby was built for 12,000,000 feet. We sent out last year 55,000,000 feet.

*Q.* You mean that you have had to do with the additions to bring it up to that capacity? *A.* Yes, sir.

*Q.* You are putting in a water gas plant at Torrington? *A.* Yes, sir.

*Q.* Any coal gas benches with it? *A.* No, sir.

*Q.* You are not building a coal gas and water gas plant each of the maximum capacity required, are you, in Torrington? *A.* No, sir.

*Q.* Did you ever know any gas engineer to do it? *A.* To do it at starting?

*Q.* Yes. *A.* I do not recall any.

*Q.* What experience have you had in valuing gas plants for

purposes of sale? *A.* I conducted negotiations for the sale of the Mt. Vernon gas works.

*Q.* Is that the only one? *A.* I think so, yes.

*Q.* And what was sold in that case was the stock? *A.* The stock; every dollar of stock.

*Q.* All of it? *A.* All of it.

*Mr. BROOKS.* Do I understand that was the only case that he had examined for the purposes of sale?

*Mr. GREEN.* That is what he said yesterday.

*Q.* What did you have to do with the Wakefield case? you mentioned that yesterday. *A.* I was called in to make an appraisal of the property.

*Q.* What property; gas? *A.* The gas property.

*Q.* Of the town of Wakefield, Mass.? *A.* Yes.

*Q.* Called in by whom? *A.* The city — or the town.

*Q.* Did you testify in the case? *A.* I did not.

*Q.* Did not? *A.* No.

*Q.* Have you made any estimate of the cost of building a gas plant suitable for supplying the city of Holyoke with gas? *A.* No. You mean estimate outside of what they had?

*Q.* Any estimate of the cost of a new gas plant suitable in capacity and otherwise for furnishing gas in the city of Holyoke? *A.* No, sir.

*Q.* What do you estimate the capacity of the purifying boxes in the plant of the Holyoke Water Power Company? *A.* They will purify 600,000 feet in 24 hours, easily. At a pinch I should say they would go up to 750,000, but as I testified yesterday that I should not want to do it as a steady thing.

*Q.* I understand you to say that for the purposes of your valuation of the structural features of the gas plant of the Holyoke Water Power Company, you made inquiries and received information concerning the price of labor and materials in Holyoke? *A.* The Water Power Company handed me a list of prices paid.

*Q.* Have you that list? *A.* Yes, sir.

*Q.* Prices paid in Holyoke? *A.* Yes, sir.

Mr. MATTHEWS. I will ask the stenographer to copy the schedule which you have just furnished me.

*Q.* From whom did you get that schedule? *A.* I think from Mr. Sickman, but I am not sure.

*Q.* Which Mr. Sickman? *A.* Not the man who tests the water wheels; the man in the office.

Mr. BROOKS. James M.

*Q.* Mr. James M. Sickman? *A.* The real estate man, I think, it is—

Mr. BROOKS. Yes, Mr. James M. Sickman.

*Q.* This schedule includes the cost per thousand for brick; per square feet per stone; the cost per day for labor—brick-masons, helpers, etc.; cost of slate roofing; cost per board measure of various kinds of lumber, etc.; also the cost of iron pipe. Did you receive any information from Mr. Sickman or anybody else concerning the cost of laying gas mains in Holyoke? *A.* No, sir.

*Q.* Did you ask for any? *A.* I asked Mr. Snow if there was much rock in the town which would have to be blasted in the ditches; he said comparatively little. I then asked about the character of the digging, and was told, and I thought it agreed very closely with what we have at Derby.

*Q.* What page of your schedule relates to gas mains? *A.* Page 19½.

*Q.* Will you explain how you got the value of the mains? *A.* The lengths, of course, were given by the Holyoke Water Power Company.

By Mr. BROOKS.

*Q.* The length of the mains? *A.* Yes. The weight is the weight that I use myself, except the 4-in. pipe, which is 19 lbs. The cost per foot delivered on the ground I assumed to be 1 cent a pound.

By Mr. MATTHEWS.

*Q.* One cent? *A.* One cent. The labor of laying I estimated from my own experience in laying mains; the lead, the same. The total per foot is the addition of those quantities multiplied out against the last column.

*Q.* For the cost of laying, and the lead you have estimated from 17 cents for the 3-in. pipe to 59 cents for the 15-in. pipe? *A.* Yes.

*Q.* Did you make any effort to inquire what the current market price in Holyoke was for laying gas pipes? *A.* I did not, sir.

*Q.* You received a schedule from Mr. Sickman containing such information regarding all the other data that I have mentioned; but that schedule did not contain anything about the cost of laying mains, did it? *A.* No, sir, I think not. There may be something at the bottom about mains there.

*Q.* Will you look at it, please, and see? *A.* If you will allow me to see it, please. (Examining paper.) That does not contain any information about the cost of laying mains.

*Q.* And yet there are data in this schedule relating to the cost of labor for other matters? *A.* Yes, sir.

*Q.* Why didn't you ask Mr. Sickman or somebody in Holyoke what it costs to lay gas mains there? *A.* Because I thought I had had sufficient experience in laying mains to determine that question for myself, and because I preferred to have the estimate my own rather than that of the Holyoke Water Power Company.

*Q.* Did you go to any of the contractors who did business in the city of Holyoke and who lay gas mains and water mains? *A.* I did not. I don't know that there are any.

*Q.* You did not inquire whether there were any? *A.* No.

*Q.* Is there any difference in the cost of laying a water main and a gas main of equal size? *A.* There is with me. I lay water mains 4 feet on top of the pipe, invariably.

*Q.* You mean to say you put the pipe 4 feet below the surface of the earth? *A.* I put the top of the pipe 4 feet below the surface of the earth all the time; gas mains 3 feet or a little more.

*Q.* That would make the cost of laying water mains a little higher than the cost of laying gas mains? *A.* Yes, sir, it does with us.

*Q.* Is there any other difference in the cost in your practice? *A.* Yes, sir.

*Q.* Any other difference? *A.* Yes, sir.



*Q.* What is that, please? *A.* I use Portland cement for the joints on the gas mains, and I use lead for the joints on water mains.

*Q.* Water mains are generally jointed with lead, are they not? *A.* Water mains?

*Q.* Yes. *A.* Invariably, so far as I know.

*Q.* And the gas mains of the Holyoke Water Power are also jointed with lead, are they not? *A.* They told me so, and it was on that basis I made my estimate.

*Q.* That is, although your own practice is to use cement jointed pipe, you estimated the system of the Holyoke Water Power Company as a lead jointed system? *A.* Yes, sir, because that was the way they had laid it.

*Q.* Then if I understand you, it would cost a little less to lay these gas mains than it would to lay water mains? Do I make my question clear or not? *A.* I think not, sir; I don't know as I exactly see what you mean or know how to answer it.

*Q.* How, in your opinion, would the cost of laying water mains in the city of Holyoke compare with the cost of laying lead jointed mains such as you have estimated for this case? *A.* A little less for the gas mains.

*Q.* And you made no inquiries of any contractors in the city of Holyoke as to what they would lay either gas or water mains for? *A.* No, sir; none.

*Q.* You took your figures of the amount of paving from the engineer, I suppose? *A.* Yes, sir; that is, the length.

*Q.* You took practically the cost of laying these gas pipes new, didn't you? *A.* New?

*Q.* Yes. *A.* Yes, sir.

*Q.* \$72,037.37 represents what in your opinion would be the cost of laying the distribution system of the Holyoke Water Power Company to-day? *A.* To-day? No, at the prices that governed last December.

*Q.* December, 1898? *A.* Yes, sir.

*Q.* And in addition to that sum of \$72,037.37 you would add \$8,007.10 for the paving? *A.* Yes, sir.

*Q.* In other words, the total of \$80,000 represents the cost

price, new, of laying last December the gas mains now owned by the Holyoke Water Power Company? *A.* Yes, sir.

*Q.* Including the pipe and labor and lead and everything?  
*A.* Yes, that is my estimate.

*Q.* You consider that pipe system worth as much as a new system would be? *A.* Practically; yes, I believe it to be.

*Q.* What did you understand the age of those gas mains to be on the average or in detail? *A.* I have not figured it out, but I think the average age would be about ten years.

*Q.* Where did you get that information from? *A.* From the commissioners' reports.

*Q.* From what source? *A.* Commissioners' reports, and some information furnished me by the Holyoke Water Power Company.

*Q.* What commissioners' reports? *A.* The Gas and Electric Light Commissioners of Massachusetts.

*Q.* You mean the reports of the commission, the printed report? *A.* Yes, sir.

*Q.* And what other information did you use? *A.* Some information furnished me by Mr. R. C. Winchester.

*Q.* From that combined information you drew the inference that the average age of the gas mains was ten years? *A.* I think it would be about that, sir.

*Q.* What reports of the gas commission did you use? *A.* All except the first two.

*Q.* From what year did you begin to use them? *A.* The report of July 1, 1885 — No, I am wrong; July 1, 1887.

*Q.* A report for the year ending June 30, 1887? *A.* Yes.

*Q.* And you used that report and all subsequent annual reports? *A.* Yes.

*Q.* Now what did you find from inspection of those reports?  
*A.* I have simply checked up the quantity of pipe reported by them each year.

*Q.* You mean length of mains? *A.* Yes, sir.

*Q.* Have you the totals for the different years there? *A.* Yes, sir.

*Q.* Will you read them off? *A.* That which I found?

*Q.* Yes. *A.* For the year ending July 1, 1887, 79,515 feet.

*Q.* Then the next year? *A.* 81,000 —

*Q.* I won't trouble you to read them all intervening. What do you find to be the number given in the last annual report?

*A.* 168,487 feet.

*Q.* And it is from those figures that you deduce the inference that the average age of the mains was ten years? *A.* In thinking it over, yes, I thought it was about that, but I may be wrong. I suppose it is a matter of computation.

*Q.* Did you make any allowance from the fresh cost price of these mains on account of their being on the average ten years old? *A.* I did not, sir. I tried to allow for depreciation in another way.

*Q.* A great many of these mains, of course, had been in the ground for more than ten years? *A.* Oh, yes, undoubtedly.

*Q.* Did you ascertain when the mains were first laid? *A.* I did not, sir.

*Q.* Do you know what year the Company began its gas business? *A.* No, I asked the question when holder house No. 1 was built, to which I referred this morning, and they said they thought about 1850.

THE CHAIRMAN. What time was it in fact?

Mr. MATTHEWS. We have not been able to find out.

Mr. BROOKS. You have not asked, that we know of.

Mr. MATTHEWS. We have asked every witness you have had.

THE CHAIRMAN. What do you say, Mr. Brooks?

Mr. BROOKS. I will find out, but I do not want to speak inadvisedly.

Mr. MATTHEWS. We have asked every witness that has been on the witness stand, and they none of them know.

Mr. BROOKS. Somewhere about 1850.

Mr. MATTHEWS. That was what — the time the works was started?

Mr. BROOKS. No, the time that was built.

Mr. GREEN. The holder?

Mr. BROOKS. Yes.

Mr. GREEN. So that we may not be misled, is it not a fact that a large share of the pipes were in the ground before that?

Mr. BROOKS. No, sir.

Mr. GREEN. And the plant represented in that identical —

Mr. BROOKS. Not a large share of the pipe; nowhere near a large share of the pipe.

Mr. GREEN. Possibly my term was inappropriate, but for some considerable distance of the pipe — some of it, anyway — it is represented on the plan as far back as 1830.

Mr. BROOKS. There never was any gas works there in 1830.

Mr. GREEN. It is represented on the plan.

Q. Did you assume that some of these pipes were laid as early as 1850? A. Yes, sir.

Q. Were you told so by any of the officers of the Company? A. I was not.

Q. Why did you make that assumption, then? A. Because they told me the holder house was built in 1850, and they undoubtedly would do business when that was built, and I assume that they started about that time.

Q. The holder house? A. The holder house No. 1, I was told, was built in 1850, or about that time.

Q. When did you understand that holder house No. 2 was built? A. I don't know as I have it. (Examining papers.) 1873.

Q. And when did you understand the retort house was erected? A. If I was told, I have not got it down.

Q. You did not allow anything for depreciation on these gas mains, although some of them were laid, according to your information, as early as 1850?

Mr. BROOKS. He did not say that, Mr. Matthews, if you are making that as an assertion.

Mr. MATTHEWS. I am asking him whether he did or not.

A. I tried to allow for depreciation on the whole plant, including mains and works, in another way.

Q. Have you estimated the rest of the plant on the same

basis that you estimated the mains; that is, at a new cost?

*A.* In nearly every case.

*Q.* But you have added 10 per cent. for profit right along, haven't you,—through most of your schedules, haven't you?

*A.* On the buildings, yes, sir.

*Q.* On all the buildings? *A.* I think I have; I intended to; but that was a builder's or contractor's profit; it was not engineering or contingencies.

*Q.* I understand. That represents a contractor's profit?

*A.* Yes, sir.

*Q.* Above the bare cost of materials or labor? *A.* Yes.

*Q.* And on your schedules of machinery have you added any arbitrary percentage for any purpose? *A.* No, sir.

*Q.* You said in some respects you did not take the fresh cost price or value of the plant. What particulars were those?

*A.* The tools, I remember, for instance; wagons.

*Q.* No matter about the tools. You have told me already about the mains, that you took them at cost? *A.* Yes.

*Q.* As if they were new? And did you do that with the buildings? *A.* Yes, sir.

*Q.* Did you do it with the large machinery at the works? *A.* I think so, except in the case of the water gas plant.

*Q.* Did you do it with the holders? *A.* Yes, sir, tried to.

*Q.* And the Bridge Street holder, too? *A.* Yes, sir.

*Q.* You say you made an exception in the case of the water gas plant? *A.* Yes, sir.

*Q.* And that is the only exception of a considerable amount? *A.* The only one that occurs to me.

*Q.* What difference did you make in your basis of examining the water gas plant and why? *A.* I understood it cost \$14,000, and I put it in for \$12,000.

*Q.* Why do you make that difference of \$2,000? *A.* I had an impression it could be bought for less.

*Q.* To-day? *A.* Yes.

*Q.* New? *A.* Yes.

*Q.* Then the \$12,000 that you have set against the water gas plant represents your opinion of what that water gas machinery could be installed for, new, now? *A.* Yes.

*Q.* Then you have misunderstood my question. Was there any case in which you took a less value than what you thought the buildings or machinery could be reproduced for new today? *A.* I think not. I intended to appraise it as if it was a new plant.

*Q.* And you made no allowance on any item or group of items for depreciation? *A.* I tried to cover the depreciation in another way.

*Q.* Yes, I am coming to that; but you did not do it by separate items? *A.* No.

*Q.* Now will you explain how you tried to cover depreciation? *A.* My estimate of value, structural value there, is \$338,000.

*Q.* \$338,286.63 — is that right? *A.* Yes, sir. I deducted the real estate; that gave the amount of money spent for buildings, machinery, pipe, etc., \$288,000.

*Q.* You deducted how much for real estate? *A.* \$50,153. It is not necessary to mention the cents, is it?

THE CHAIRMAN. No.

*Q.* You deducted fifty thousand how much — one — *A.* — one hundred and fifty-three.

*Q.* That left two hundred and eighty-eight thousand — *A.* — one hundred and thirty-three dollars.

*Q.* Now if you will go on, Mr. Nettleton. *A.* That left the cost of buildings, machinery, pipes, \$288,133. It seemed to me but fair to allow 10 per cent. for engineering and contingencies which I have not allowed in that estimate, — \$28,813.

By the CHAIRMAN.

*Q.* What do you mean by that, may I ask? *A.* Engineering?

*Q.* Yes. No, I understand that; what do you do with the 10 per cent? *A.* I did not include it in my figures, but I have offset that against the depreciation. That is one of the items.

By Mr. MATTHEWS.

*Q.* Did you offset any other item against depreciation? *A.*

Yes, sir. If the City of Holyoke were existing to-day, and had no gas works, and were to start to build a plant, they would, of course, be out the interest from the time they spent the money on the different parts until the plant was completed. It would, in my judgment, take them more than three years to get to the point of earning the amount of money that the plant is to-day and will be earning if the City takes it over, the day they take it. It seemed to me it was only fair to allow two years profits as being within the mark that the City would lose in the time it would take to get the City to a point where they would be in the condition that they will be if they take the plant over. Those profits are, I am told, \$33,600 a year. That would be \$67,200 for those two years.

*Q.* Thirty-three thousand how much a year? *A.* \$33,600.

*Q.* You multiply that by two? *A.* I multiply that by two.

*Q.* And get \$67,200? *A.* Yes.

*Q.* Then you add your 10 per cent. for engineering? *A.* And contingencies.

*Q.* Twenty-eight — *A.* — eight hundred and thirteen.

*Q.* That gives you what? *A.* \$96,013; and that, in my judgment, more than offsets by a long ways any possible depreciation.

THE CHAIRMAN. Now we had better stop, Mr. Matthews.

(Adjourned.)

## ELEVENTH HEARING.

Boston, Thursday, April 20, 1899.

The Commission met at 9.30 A. M.

CROSS-EXAMINATION of CHARLES H. NETTLETON, resumed.

By Mr. MATTHEWS.

Q. You were stating yesterday that you had practically allowed for depreciation by omitting various items? A. Yes, sir.

Q. To the amount of \$96,013? A. Yes, sir, \$96,013

Q. Then, if it were not for the depreciation which you think would be fair to allow, your total value of the plant, considered in its structural features, would be \$338,000 plus \$96,000? A. The structural value?

Q. Yes. A. No, sir.

Q. What do you make the total structural value, then? If you had made no allowance for depreciation, what would the total structural value be? A. I should say that the total value of these works for the City of Holyoke, rather than to build a new works, would be \$338,000 plus \$96,000.

Q. That would make \$434,299? A. Yes, sir.

Q. When you prepared this schedule of \$338,000, what did that represent to your mind? A. The value of the plant. That is, the cost of building a plant exactly like that one.

Q. Isn't that what you understand to be the structural value of the plant? Didn't you use that expression yourself? A. Yes, sir.

Q. That total would make \$434,000, in round numbers? A. As the value of the plant to the City of Holyoke.

Q. The structural value of the plant without making any allowance for depreciation? A. To the City of Holyoke.

Q. You mean the structural value of the plant? A. I mean the structural value of the plant to the City of Holyoke, rather than to build a new works.



Q. Did you say anything about the value of the plant to the City of Holyoke to Mr. Brooks yesterday? A. I think not, sir.

Q. You stated that was your valuation of the structural value of the plant? A. I think I did, sir.

Q. Do you wish to qualify that now, or do you still adhere to that statement? A. I think now a new element has been brought in, if I may answer it in that way.

Q. Who has brought the new element in? A. Perhaps I have.

Q. An element that you did not suggest in your answer to Mr. Brooks yesterday? A. Not directly. I said it in this way. I have allowed for depreciation in another way.

Q. I understand that, but what I do not understand is your difference between the structural value of the plant and its structural value to the City of Holyoke. I did not understand you to involve the structural value yesterday. A. I do not think I did, except in the way that I have stated.

Q. By allowing these items as an offset against depreciation? A. No.

Q. Why did you make those allowances, amounting to \$96,000, except to offset depreciation? A. I did, but I said it exceeded the depreciation, way beyond.

Q. You did it for that purpose? A. I did it for that purpose.

Q. Then why did you allow the whole \$96,000? A. Well, perhaps I was careless about it. I do not know but I was.

Q. When you made this schedule you thought it was a fair thing, on the whole, to omit these charges, amounting to \$96,000, in lieu of making any allowance for depreciation, didn't you? A. Yes. May I qualify that?

Q. Certainly. A. It seemed to me it would be so fair, so reasonable, that it would appeal to the Commissioners.

Q. Then you were not making up this estimate as your own final opinion, but simply as a paper that would appeal to the Commissioners? A. I don't think I mean that. At least, I did make the estimate out as my opinion.

Q. And that opinion at that time in substance was this: That you should omit to take into account items amounting to \$96,000, in lieu of making a depreciation? A. Yes.

Q. What percentage is \$96,000 of \$434,000? A. Less than 25, I think.

Q. You had better reckon it. I do not care to have it down to a fraction. A. \$96,000 to \$434,000?

Q. Yes. A. Between 22 and 23.

Q. That is, the amount you allowed for depreciation was about 22 per cent. of the whole value of the plant, including the land? A. No, sir, I haven't said that.

Q. The amount you failed to add to your plant, because you had not made any depreciation, amounting to 22 per cent., including the value of the land? A. That was the whole amount.

Q. Will you deduct what you allowed for the land from the \$434,000, \$434,299? A. \$50,153.

Q. That would leave \$384,146? A. Yes, sir.

Q. There would not be any depreciation on the land, of course? A. No, sir, there is an added value, I should suppose.

Q. Now, will you tell me what percentage \$96,000 is to \$384,000? A. Just about 25 per cent.

Q. In figuring upon quantities for the buildings, did you make your own measurements, or did you take the figures given you by some of the engineers or officers of the Water Power Company? Did you depend upon those plans that have been put in evidence by this Company? A. I suppose so. There was a big roll of plans given me; they said they were the same thing.

Q. A large roll of blue prints? A. Yes.

Mr. MATTHEWS. I suppose there is no question but what they are the same?

Mr. BROOKS. I suppose not. I suppose they are the same.

Q. I would like to have them identified so there need be no question about that. (Plans produced.) A. They look very familiar; I don't know that these are exact copies, but I understand they are.

By the CHAIRMAN.

Q. Do you think they are the same? A. I have no doubt they are the same plans.

By Mr. MATTHEWS.

Q. Do I understand you to say you made your estimates from measurements made from these plans, or measurements

made from the buildings? A. Measurements made from the plans.

Q. You did not measure the buildings themselves? A. I did not, in any case.

Q. And if you said so, that was by mistake? A. It was, certainly.

Q. Did you use the estimate of quantities which was prepared by the engineers of the Holyoke Water Power Company? A. I did not. I saw a paper giving quantities in the office, but a copy was not handed to me, and I did not know whether it was intended to give me a copy or not, and I did not ask for one. I haven't had that estimate, and I do not know whether my quantities agree with theirs or not.

The CHAIRMAN. Have you any photographs of the property, Mr. Brooks?

Mr. BROOKS. Yes, sir, we have, but we haven't them here. We will submit them to you next week.

Q. How did you make up your estimates of the value of the machinery at the gas works, as distinguished from the buildings on one hand, and the mains on the other? A. Partly from my own experience. I also consulted with the Isbell-Porter Company of New York and Newark. They are manufacturers of gas works machinery.

Q. What information did you get from them? A. The cost of certain things connected with the gas works, their estimate of the cost.

Q. In what shape did you get that information? A. In dollars.

Q. Did you get it in writing? A. No, sir; I went there and saw them, talked with them.

Q. Did you see anybody else besides the Isbell-Porter Company? A. No gas works manufacturer.

Q. You stated that there was an opportunity in the city of Holyoke to increase the gas business that is now being done there? A. Yes, sir.

Q. How did you figure that out? A. The sales in Holyoke are between 1300 and 1400 per capita on a basis of 44,000 population. I am selling myself in Derby, a manufacturing town, 2,000 feet, and if that might be considered an extreme, I took 1,900

feet for Holyoke on the basis of 44,000. That makes a sale of 83,600,000. They are now selling 60,000,000. 40 per cent. would be 24,000,000, which would make 84,000,000. I testified yesterday that I believed the gain in out-put could be made 40 per cent. That would be practically 40 per cent.

Q. Was that the only information, or fact, that you used in reaching your conclusion that there was a market for 1,900 cubic feet per capita in Holyoke? A. No, sir.

Q. What else did you use? A. In the last report of the Gas Commissioners of the State there was sold at Worcester 2200 feet per capita, in Springfield 2,200 feet. This is on the basis, as they state in the report, of the census of 1895. The population has probably increased since that time, and the quantity sold per capita would be somewhat decreased, but my estimate is on that basis. North Adams, 2,100; Newton, 2,300; Lynn, 2,093; Lowell, 3,200; Haverhill, 2,800, and Cambridge, 2,600.

Q. Why did you pick those communities from the Gas Commissioners' report? A. Because the sales per capita were where they were. I think it is possible to make such sales.

Q. You picked out those communities because they consumed large quantities of gas. Perhaps you did not understand my question, Mr. Nettleton? A. I did not.

Q. What did you think I asked? A. I heard your last question. I did pick out those places because they were selling what I believed to be a good quantity of gas in proportion to the population.

Q. Did you take any other cities or communities into account besides those which you have just read? A. Yes, sir, I have here a table of 24 or 25 cities in Massachusetts.

Q. Do you mean the 24 that have been referred to? A. Yes, the 24 that have been referred to, which Mr. Prichard used.

Mr. BROOKS. I suppose later on I may put in such numbers of the Gas Commissioners' reports as you think are applicable to this case?

Mr. MATTHEWS. I suppose there is a difference between referring to a document of that kind on cross examination, and offering it as direct evidence, but we agree with the position taken by the counsel for the Company, that these official documents are admissible to the extent that the facts in them are ma-

terial, and subject of course to any correction or qualification that either side may apply to them.

Mr. BROOKS. We were shut out the other day.

Mr. MATTHEWS. Not by any objection on our part. If you wish to offer all the reports of the Gas Commission, we do not object.

Mr. COTTER. There is a case of Worcester against Northboro which seems to me settles the question that these documents are admissible, for purposes, of course, which we will pass upon later.

Mr. BROOKS. I assume they would not be admissible because they are public documents, unless the evidence itself, if it came from some other source, would be admissible.

Mr. MATTHEWS. With that understanding we would like to offer all the annual gas reports.

Mr. BROOKS. Well, I object to that.

The CHAIRMAN. You cannot offer them all right here, very well.

Mr. MATTHEWS. I will offer the report for 1898 now.

The CHAIRMAN. If you desire to put them in for the purpose of examining this witness, you can cross-examine him now, and we will dispose of it later. I think they are admissible.

Q. The table you have just referred to was the one used by Mr. Prichard? A. Yes.

Q. Did you use the figures compiled by him, the same table exactly? A. Yes, sir.

Q. Have you a copy of it there? A. Yes, sir.

Q. Will you let me see it? This is an exact copy of the table that Mr. Prichard used? A. I believe it is, yes sir.

Q. And that is what you used to enable you to arrive at this opinion in relation to the possibilities of business in Holyoke?

A. That was one of the sources of information.

Q. And another consisted of the cases that you picked out from the Gas Commissioners' report, which, perhaps, may not be included in that table? A. Yes, sir.

Q. And another was your experience in Derby? A. Yes, sir.

Q. What other information did you use on which to form this opinion? A. I have knowledge of the sale of gas in cer-

tain places, but am not at liberty to disclose those places, which also tends in the same direction. Now, beyond that, when I was in England, two years ago, I called at a small place in the south of England, Salisbury—— (Ruled out.)

Mr. BROOKS. I have no objection to its being ruled out, but his answer was certainly responsive.

Mr. MATTHEWS. I don't object to it.

Mr. BROOKS. We don't care.

The CHAIRMAN. Very well.

The WITNESS. It was a small town of 16,000, and they were selling 80,000,000. It seemed to me that the question of sale of gas depends largely on the price and the push that you put back of it.

Q. You think it depends largely on the price? A. It depends largely on the price, but the push has a good deal to do with it.

Q. What was the price in this town? A. Three and threepence.

Q. About 80 cents a thousand? A. About that, sir.

Q. What was the price of gas in Lowell? A. A dollar, I believe.

Q. And in Lynn? A. A dollar, I believe.

The CHAIRMAN. Do you mean retail?

Mr. MATTHEWS. Yes, retail price.

Q. Have you stated now all the sources of information that you used in forming this opinion as to the possibilities of an increase in the consumption of gas in Holyoke? A. All that I used directly.

Q. Did you use any others, indirectly? A. Yes, sir, I think so. The year that I was president of the American Gas Association I prepared an address, and as comparatively little attention had been paid among people that I knew in the gas business to the sales per capita. I tried to get information in this country and abroad as to what was being done. I had replies from a great many places, but it is only fair to say that I have not referred to those in preparing this statement.

Q. When did you make that address? A. In October, 1897.

Q. Was it published? A. Yes, sir.

Q. Where? A. In the proceedings of the American Gas Light Association of that year.

Q. Can you refer me to the date of the publication? A. It would be in the proceedings of that year, 1897.

Q. That is, there is a volume published at the end of the year of all the proceedings of the Association? A. There is only one meeting, and a volume is published each year.

Q. And this would be published in 1898? A. It would be published in the winter of 1897-98, but it would be dated 1897.

Q. Have you written anything else on the subject of gas? A. Short papers for lighting associations that I have belonged to.

Q. Anything that has been published? A. They have been published in the Gas Light Journal and in the proceedings of the Associations.

Q. Upon what branches have you written? A. My articles have been technical.

Q. Have you ever written anything about the valuation of gas plants? A. No, sir; not that I remember.

Q. Have you ever written anything about consumption, except the paper that you refer to? A. I think not.

Q. Have you now stated all the sources of opinion which you used in reaching the opinion I am questioning you about? A. I think so.

Q. Did you take into account the local conditions that appear to obtain in Holyoke? A. I tried to; yes sir.

Q. What local conditions were they that came to your knowledge and were taken into account by you in forming this opinion? A. It is a manufacturing town.

Q. Anything else? A. I don't know that I did. The conditions are much the same as all other manufacturing towns, they contain people of moderate incomes, small incomes, and large incomes.

Q. Did you assume the conditions were about the same as in other manufacturing towns of about the same size? A. Yes, sir, I think I did.

Q. Did you make any inquiry as to whether there had been a decrease in the consumption of gas in recent years? A. Mr. Snow told me that the maximum send-out last December was

350,000, and two or three years ago it was 400,000 and something over, 420,000, I believe, but am not sure.

Q. Was that all the information you obtained upon that subject? A. I should say it was. I may have looked the thing up in the Commissioners' report. I cannot say positively.

Q. You mean in the annual report for a series of years? A. Yes, sir, I may have.

Q. Do you remember what the result of looking up was? A. No, sir, I do not.

Q. And did you or not take into account the fact that there was a reduction in the consumption of gas for several years? A. I did not.

Q. Did you make any inquiry as to who the large consumers of gas in Holyoke were? A. I did not make any positive inquiries. I may have inquired incidentally.

Q. Was your attention drawn to the fact that the mills have been the largest consumers of gas in Holyoke? A. I think so, yes, sir.

Q. Was your attention also drawn to the fact that the mills have very generally been putting in electric light plants of their own, and discontinuing the use of gas? A. Mr. Snow told me so.

Q. Did that fact have any weight in your opinion? A. It would have some effect, yes, sir.

Q. You took, however, what you thought ought to be consumed in Holyoke? A. Yes, sir.

Q. In comparison with an average manufacturing town of that size? I live in a manufacturing town myself.

Q. Did you not take into account the fact that the largest consumers have been dropping off? A. Yes, sir.

Q. And notwithstanding that, you think the consumption of gas ought to be 1900 per capita in Holyoke? A. I do.

Q. Will you let me see the commissioners' report that you had there? This report contains no calculations about the per capita consumption, does it? A. It does not.

Q. But it does contain a computation or statement of the amount of gas sold per consumer, or per meter? A. It does.

Q. And also of the sales per mile of main? A. It does.

Q. Did you figure out where Holyoke stood with reference



to either of those factors? A. In connection with any Massachusetts company?

Q. Yes, in connection with any Massachusetts company, or anywhere? A. I did not.

Q. And you don't know what the result would be if you had taken those facts into account? A. I do not, sir. I would like to add to that.

Q. Certainly, anything you want. A. That for years, several years, my thoughts in that direction have been along the line of sales per capita.

Q. You would admit, would you not, however, that the amount of gas per mile of main or meter was also an important matter in a calculation of that sort? A. Certainly.

Q. And what one ought to do would be to take, not only the consumption per capita, but also the consumption per consumer and per mile of main? A. In a measure, but the main thing in my mind is the sales per capita.

Q. Did you consider the cost of operating the gas works in Holyoke? A. No, sir, except in the most general way.

Q. Did you examine into the earnings? A. Not at all.

Q. The valuations that you made, based upon earnings, were predicated, then, upon figures given you by some one else? A. Entirely so.

Q. That is, you were asked to assume that the net earnings were something like \$33,000 per annum? A. Yes, sir.

Q. And you accepted that fact as a mere assumption? A. Yes, sir.

Q. And have not verified it yourself? A. Not at all.

Q. Have you any opinion as to what it should cost per thousand and cubic feet to operate a gas works, or any part of the expense of operation? A. Yes, sir.

Q. Have you any opinion as to how much should properly be expended per thousand cubic feet for repairs and current renewals? A. No, not in that way.

Q. Or what percentage of gross receipts should be applied to repairs and current renewals? A. No, sir. I would like to qualify that answer.

Q. Make any qualification you wish, Mr. Nettleton. A. Of course I have an opinion, I have an opinion.

Q. Will you state any opinions you have in reply to either of those questions? A. You include the repairs at the works alone?

Q. Take it that way, or take the repairs at the works and the repairs on the distribution system jointly, that is, take them either both together or separately, just as you please. A. I should think repairs and current renewals—6 cents per thousand feet would cover everything at the gas works.

Q. And how much a thousand feet for repairs and current renewals on the distribution system? A. Oh, that would be very small.

Q. I do not want a mere guess now, but I ask you whether you have an opinion. A. I am trying to figure it out from my own experience. In that do you include the repairs on meters?

Q. Yes, everything of that sort; repairs on the whole distribution, including meters; that is, everything you have not already included in repairs and renewals at the works. A. Two cents would amply cover it.

Q. Including repairs on meters? A. Yes, sir.

Q. And repairs on the mains. Now do you know or have you inquired what amount per thousand feet sold is paid by Massachusetts gas companies for those items? A. No, sir, I have never figured it out.

Q. You gave yesterday a total value for this gas plant, including the present opportunity for the increase of the business, of \$819,000. Is that right? A. \$819,000.

Q. Will you state how you arrived at that? A. Yes. The present sales are 60,000,000 in round figures. I have testified the way I believe the consumption can be increased 40 per cent., which would make 84,000,000. Naturally the price would be reduced. The average price now is \$1.34. I have assumed that the price will be, at that quantity, \$1.25. That would make an income from gas of \$105,000. I have prepared here a table from 25 of the Massachusetts gas companies, taking the last Commissioners' report, and have set down in three columns the income from the sale of gas, the income from residuals, and the operating expenses. Deducting residuals from operating expenses leaves, for these whole 25 companies, \$1,648,620.

Q. Let me interrupt you for a moment. Are those 25 com-

panies the same that figured in Mr. Prichard's table? A. Exactly. This amount is 61 per cent. of the income from the sale of gas.

Mr. GOULDING. What is 61 per cent.?

Mr. MATTHEWS. Operating expenses less the proceeds of residuals.

The WITNESS. The operating expenses of 25 companies, less the residuals, leaves the net running expenses 61 per cent. of the receipts from gas.

The CHAIRMAN. The expense?

The WITNESS. Yes, sir. That leaves 39 per cent. for profit. I have shown that the income from 84,000,000 at \$1.25 would be \$105,000. 39 per cent. of that is \$40,950.

Q. \$40,000? A. \$40,950.

By Mr. BROOKS.

Q. What price did you say you are selling your gas at?  
A. I figured it at \$1.25.

By Mr. MATTHEWS.

Q. By that you mean net price to the company? A. I mean the net price, yes, sir.

By the CHAIRMAN.

Q. That gives you \$40,000? A. \$40,950 for profit; and that, on a basis of 5 per cent., makes the value \$819,000.

By Mr. MATTHEWS.

Q. Will you let me see that table? (The witness produced another paper.) That is the one I meant. This we should like to offer.

The following is the document above referred to:

	<i>Income from Sale of Gas.</i>	<i>Income from Residuals.</i>	<i>Operating Expenses.</i>
Brockton . . . . .	\$50,608	\$7,629	\$35,761
Cambridge . . . . .	246,202	42,273	182,722
Charlestown . . . . .	143,916	20,307	105,631
Chelsea . . . . .	46,370	8,605	34,660
East Boston . . . . .	71,846	10,483	48,778
Fall River . . . . .	144,842	155	82,627
Fitchburg . . . . .	35,854	5,143	25,101
Gloucester . . . . .	34,143	5,204	23,564
Holyoke . . . . .	80,472	7,054	59,877
Haverhill . . . . .	105,526	—	64,848

	<i>Income from Sale of Gas.</i>	<i>Income from Residuals.</i>	<i>Operating Expenses.</i>
Jamaica Plain . . . . .	\$105,597	\$20,312	\$69,343
Lawrence . . . . .	126,547	20,880	103,195
Lowell . . . . .	299,318	47,175	225,928
Lynn . . . . .	145,139	19,854	115,410
Malden . . . . .	91,129	7,982	68,181
New Bedford . . . . .	86,672	10,205	55,304
Newton . . . . .	132,046	21,713	111,967
North Adams . . . . .	45,466	8,815	39,236
Pittsfield . . . . .	27,487	—	18,651
Salem . . . . .	62,556	9,699	48,404
South Boston . . . . .	109,220 *	—	89,825
Springfield . . . . .	159,774	18,357	116,785
Taunton . . . . .	59,579	5,141	42,574
Waltham . . . . .	41,504	6,532	34,590
Worcester . . . . .	251,163	16,764	165,940
	<u>\$2,702,976</u>	<u>\$320,282</u>	<u>\$1,968,902</u>
Operating expenses . . . . .	\$1,968,902		
Less residuals . . . . .	320,282		
	<u>\$1,648,620</u>	61% of income from sale of gas.	

Mr. BROOKS. Is this the same paper you have already put in?

Mr. MATTHEWS. No.

Mr. BROOKS. From Mr. Prichard?

Mr. MATTHEWS. No. It is the same cities, but the figures are different. Isn't that so?

The WITNESS. Yes, sir.

Q. In preparing this table you took from the annual report of the gas commissioners for January, 1899, the income from the sale of gas, the income from the residuals, and the operating expense account? A. Yes, sir.

Q. And nothing else? A. Nothing else.

Q. Did you notice that these companies, or most of them, also charged a certain amount for depreciation? A. I have noticed that there is a charge for depreciation in the commissioners' report.

Q. An annual charge for depreciation? A. I don't know about it being an annual charge; I never followed that out.

Q. From what part of the commissioners' report did you

get the figures from the income, for residuals, and for the operating expenses of these 25 companies? A. May I show you?

Q. Yes, sir. A. What company would you have?

Q. I think you can answer generally. From what part of the report? A. It is from the manufacturing account at the end of the commissioners' report.

Q. That is to say, you took it from the balance sheets, manufacturing and profit and loss accounts, to June 30, 1898, included under Appendix A? A. Yes, sir, that would be a more accurate description.

Q. And in the profit and loss account for each of those companies, or the most of them, you found annual charges for depreciation, did you not? A. I have noticed that charge, yes, sir, in many of them.

Q. Did you take any account of that generally in making this table up? A. No, sir.

Q. You omitted those items entirely? A. Entirely.

Q. In reaching your total income of \$105,000, you assumed not only that the present consumption of gas will continue, but that it will be increased by 40 per cent.? A. I believe it will be, sir.

Q. That is the assumption upon which you reached this figure of \$105,000? A. Yes, sir.

Q. That is to say, you assume that the company will continue to earn as much as it is earning now, and 40 per cent. more? A. Yes, sir.

Q. Gross? A. In feet.

Q. I should have said, continue to sell as much as it is selling now, and 40 per cent. more? A. Yes, sir.

Q. You assumed that it will be able to secure an average net price of \$1.25 per thousand sold? A. I think it will, when it gets to that point.

Q. I am simply asking whether you assumed that? A. Oh, I beg your pardon. I did assume it.

Q. Yes, sir; that is what I understood. You assumed that whatever franchises it has in the public streets will remain as they are? A. Yes, sir. I believe in the laws of Massachusetts.

Q. You assumed that it will have no more competition than it has today? A. I did.

Q. And then, having made those assumptions, you assumed that there would be an increase in the business, as measured by the gas sold, of about 40 per cent.? A. Provided the business is pushed; canvassers, gas stoves, in every possible way, to increase the sales.

Q. That is, you assume the existence of a more energetic management than that which characterizes the works today? A. I hardly want to characterize it that way. We each manage our works according to our own judgment. Personally I believe in what I have indicated, and am doing it.

Q. You assume a different management, don't you? A different system of managing the works? A. Perhaps so.

Q. And a more efficient system? A. I wouldn't want to say that.

Q. Wouldn't it be more efficient if the consumption of gas was pushed, upon the basis of the present population, from a total of 60,000,000 sales to a total of 84,000,000 sales? A. I wouldn't want to say it would be more efficient. I believe in that way of working myself.

Q. Don't you assume a better or more efficient administration of the business in order to produce that result? A. I believe in a different management of the business.

Q. Do you think that this extra consumption would come by itself? A. Not in a short time.

Q. Then you must assume some difference in the manner in which the business is conducted? A. That is what I said, a difference of management.

Q. That difference would have to be in the direction of greater efficiency and energy, would it not? A. I am not willing to say that, sir.

Q. How will you put it, then? How would you describe the difference in management?

Mr. BROOKS. You need not hesitate to criticise our system, if you wish to.

The WITNESS. Well, I don't care to. We all have the right to our own opinions in regard to management.

Q. Will you describe the difference in the management, in your own language, which you have assumed as resulting in this increase of consumption? A. May I speak from personal experience?

Q. Certainly. A. Well, I believe in putting out canvassers to solicit, to try to get customers. I believe in selling stoves, trying to induce people to use them and, as a starting point, perhaps, in cooking lectures. Personally I sell stoves less than cost. In every possible way that I can think of, within reason, I try to get additional consumption and additional consumers.

Q. Wouldn't that be introducing a more energetic administration into the gas works? A. It would be introducing a different management.

Q. A management that is different, but you wouldn't be willing to say more energetic? A. I do not care to so characterize it, sir.

Q. This increase of consumption will be due to a difference—I won't characterize it—but to a difference in the management of the business? A. In part.

Q. In part. And to what else? A. To a lowering of price, which I would think would naturally come.

Q. And it would not be dependent upon the plant itself? A. In every progressive town there is naturally an increase in consumption, I think.

Q. Do you think that has been the case in Holyoke? A. Barring the loss of the mills, yes.

The preceding question, "And it would not be dependent upon the plant itself?" was read by the stenographer.

Q. I do not think you answered that question. Would this increase of business be dependent in any way upon the plant itself? A. By "plant" you mean gas works?

Q. I mean the works themselves. A. The gas works?

Q. Yes. A. No, sir.

Q. And this valuation of yours of \$819,000 is, generally speaking, based upon the earning capacity of the plant and not upon the plant itself? A. Yes, sir.

Q. Do you know what percentage of the total consumption of gas is used at the mills? A. I do not.

Q. What do you think ought to be allowed for depreciation in a gas plant, as a fair charge against annual income?

Mr. BROOKS. That I object to.

Q. I will ask the witness if he has any opinion upon the subject first. Have you an opinion upon that question? A. Yes.

Q. Now I will ask you what it is.

Mr. BROOKS. That I object to. What difference does it make, may it please your Honors, what his opinion may be with reference to some other plant?

The CHAIRMAN. I confess I did not hear the question.

Mr. MATTHEWS. I asked him what his opinion was, if he had one, concerning the amount that ought to be allowed as a charge against annual income for depreciation?

Mr. BROOKS. In a gas plant.

Mr. MATTHEWS. Generally.

The CHAIRMAN. I do not know that you can reduce it to any uniformity.

Mr. MATTHEWS. He said he had an opinion.

Mr. BROOKS. My suggestion, may it please your Honors, is this: that we cannot be affected by any general opinion that he may have with reference to charging off per annum any certain sum for depreciation. It all depends, as I understand it, upon the care of the plant, the care that is taken of it, and what is, as a matter of fact, done from year to year in the plant. How can it be competent for him to express a general opinion that does not involve this particular plant?

The CHAIRMAN. I think you opened it enough to let that evidence in. I think we had better take it, Mr. Brooks.

Mr. BROOKS. I do not know in what way I opened it. Very likely I have.

The CHAIRMAN. He has testified, any way, on the value. I think we had better take it.

Mr. BROOKS. I would like to save that question.

The CHAIRMAN. All right.

Q. Now will you state what opinion you have upon that subject? A. Is this based on gross income?

Q. Answer it any way you please. That is the way I put it. A. I think that one per cent. on the capital invested, and my impression is that that would be about three per cent. on the income from gas.

The CHAIRMAN. I did not understand his answer.

Q. I will ask him to explain it. Mr. Nettleton, will you explain that a little more definitely? In other words, explain the relation that exists in your mind between a percentage on capital invested and a percentage on gross income from sales? A. Perhaps I was reasoning from my own works.



Q. All I want you to do is to explain it. We don't understand it. A. For instance, the capital invested in the case of my own works would be in the neighborhood of \$250,000,—in the gas plant.

The CHAIRMAN. We hardly want that, Mr. Nettleton.

Mr. BROOKS. He is asking him to explain it.

Mr. MATTHEWS. I don't object to his stating anything which will clear up that statement. I think it is rather an interesting feature; I would like to see how he works it out.

The CHAIRMAN. Go on, Mr. Witness.

The WITNESS. And that will produce in my own case \$2500. Now, if the works are kept in repair, that \$2500 invested at 5 per cent. I believe will amply take care of the depreciation on the works.

Q. What is the relation between that 1 per cent. of the capital invested and the 3 per cent. of the income from sales? That was my question. A. Well, that would be 4 per cent. of the sales.

Q. In other words— A. I prefer to omit the reference to the sales; I think that would be the fairer way,—the better way, if I may omit it.

Q. You stated it, and I would like to get what was in your mind, that is all. A. Figuring roughly in my mind, I think it would be 3 per cent. of the sales. In my own case I think it would be a little more.

Q. It would be about 4 per cent., would it? A. Yes, sir.

Q. That would make the sales how much? A. What?

Q. That would make the sales how much? A. My sales?

Q. The sales which you had in mind? A. \$57,000, net.

Q. Fifty-seven what? A. \$57,000 from gas,—\$58,000 I think it is.

Q. \$58,000? A. Please change that. \$58,000.

Mr. BROOKS. Fifty-eight what?

The WITNESS. \$58,000, net sales of the gas.

Q. Your \$2500 would be about 4 1-2 per cent., would it not?

The CHAIRMAN. What is that? I did not understand?

Mr. MATTHEWS. I am getting the witness' opinion as to what should be allowed for depreciation.

The CHAIRMAN. That is, this plant was appraised for

\$800,000, you say, round numbers; are you now asking whether he took into account in putting it there anything for depreciation?

Mr. MATTHEWS. Not on that, but he is testifying to a theory of capitalizing net earnings, with an allowance for depreciation. Now, I am asking what that fair allowance would be, according to the witness' theory. I think we are getting at it.

The CHAIRMAN. Cannot you state the results, Mr. Witness?

The WITNESS. You assumed in the question 4 1-2 per cent.; it is not 4 1-2.

Q. What would it be? A. About 4 1-4 on the net sales of gas.

Q. On what? A. Net sales of gas.

Q. That is, the actual income received by the company from sales of gas? A. This next year—

Q. Is that so? A. This past year, yes, sir.

Q. When you say "net sales" you mean the amount received for gas less rebates? A. Yes, sir.

Q. You don't mean less operating expenses? A. Oh, no.

Q. Have you any opinion concerning the average or normal life of different gas plants? A. Yes, sir; I have an opinion.

Q. Have you worked that out in the tabular form as some of the other witnesses have done? A. No, sir.

Q. Have you seen the tables that have been put in by some of the other witnesses? A. No, sir; I have not seen any tables on that, nor heard of them.

Q. What in your opinion is the average or normal life of the buildings in the gas plant?

Mr. BROOKS. That we object to.

Mr. MATTHEWS. This, if the Court please, is on the other part of the depreciation in the case, that is, how much should be deducted from the reproductive cost to reach the present value.

The CHAIRMAN. What is your ground of objection, Mr. Brooks?

Mr. BROOKS. My ground for objection is, it has no application to this particular case. I have no objection to his asking what he considers the life of this plant.

The CHAIRMAN. That is what he is asking.

Mr. BROOKS. No, your Honor; he is asking a different question.

Mr. MATTHEWS. I am coming down to this plant.

The CHAIRMAN. These buildings speak for themselves, I suppose.

Mr. MATTHEWS. I don't know how long they will last.

The CHAIRMAN. No, of course not. You are asking him now the life of all the buildings that the city has taken?

Mr. MATTHEWS. I am asking him, in his opinion, what is the average or normal life of the different parts of the gas works. I am asking him the same question that was asked by the other counsel, answered by the other experts, and which was answered by them in tabular form.

Mr. GOULDING. The average is something that exists in the minds of the witnesses——

Mr. MATTHEWS. In the minds of the witnesses, of course.

Mr. GOULDING. It is a thing that does not exist on the face of the earth, but the average life of all the gas buildings around the country,—if "normal" means the same thing; I suppose it means something different,—but the average life, I submit, of all the gas buildings in the United States is wholly immaterial.

Mr. MATTHEWS. I said, average or normal life of the various parts of this, machinery and buildings.

Mr. GOULDING. The various parts of this?

Mr. MATTHEWS. The buildings and machinery connected with the gas plant?

The CHAIRMAN. Limit yourself at present to these.

Mr. MATTHEWS. I will do that to start with, but I do not waive my right to put this question again.

Q. What do you say is the normal or average or expected life of the buildings at the gas works of the Holyoke Water Power Company from the time when they were built?

A. Take the brick side walls, and I cannot see why they would not last almost indefinitely. Take that building that I referred to yesterday, holder house No. 1, it is 49 years old, and it is in—I would almost characterize it as beautiful condition, certainly fine condition, very fine.

Q. Well, could you assign any probable term of life to that building? A. Oh, the brick walls of those buildings, kept in repair, that is, where the mortar falls out, point them up, as is

done in all buildings to keep them in repair,—my impression would be over one hundred years; I don't know but two hundred years; almost indefinitely.

Q. You don't know of any buildings used as gas works that have lasted for any such length of time as that? A. The gas business is not as old as a hundred years.

Q. The gas business began about 1815, didn't it? A. 1814, I think in London. But gas, I think, was used about 1807. But in London the first supply was 1814, I believe.

Q. How long have gas works been established in this country? A. I don't think I can answer definitely. I think the business was started in 1855 in New York, but I am not sure.

Q. How long have they been established in Massachusetts? A. I don't know.

Q. Assuming that gas works were established in Massachusetts in the year 1822, can you state a building that was erected within twenty years of that year, and which is still used for gas works? A. I cannot.

Q. Can you state any gas building in Massachusetts that has been used fifty years? A. I cannot. This holder building in Holyoke comes the nearest to it, 49 years.

Q. Have you ever examined the buildings or the machinery of the older gas companies in this State, in Boston and Lowell, and elsewhere? Years ago I was frequently at the North End station of the Boston Gas Company,—I say frequently; I mean several times. The New England Gas Association were invited there.

Q. Can you mention any building that is owned by any gas company in Boston that has been used for more than thirty-five years?

Mr. BROOKS. Has not he already covered that?

A. I cannot.

Q. Now, what do you say is the normal or probable life of the machinery as distinguished from the buildings?

Mr. BROOKS. Of this plant?

Mr. MATTHEWS. The machinery and the pipe used in this plant, yes.

Mr. BROOKS. Well, I object to that.

The CHAIRMAN. Well, we are trying to find out the life of this machinery.

Mr. MATTHEWS. I take it the life of machines of similar kind is the same for the purposes of this question, provided they are used with proper care. However, I will restrict the question, without waiving it, to the machinery that is in use at this plant.

Q. Take the coal benches, for instance? A. The benches?

Q. Yes. A. The benches of course wear out. They are removed and renewals paid for out of earnings.

Q. Take the whole apparatus? A. The hydraulic main, the mouthpieces?

Q. The apparatus in the retort house. A. The hydraulic main——

Mr. BROOKS. The hydraulic what?

The WITNESS. The hydraulic main, that is the big pipe on the top of the benches——

Q. What page is that building on, or that machinery on?

A. I ought to have an index. It is page 12, sir, the coal gas retort house.

Q. Perhaps you can find it for me? That is the building; I want the machinery.

The CHAIRMAN. I wish you would call our attention to the statute with reference to these Gas Commissioners' reports as evidence.

Mr. MATTHEWS. I think it is 1885, Chapter 314, but that is a mere off-hand reference.

Q. I refer to the item which you have in your estimate of \$21,450 for 54 retorts.

Mr. BROOKS. Where is that?

The WITNESS. Page 13.

Mr. BROOKS. That is all right; go ahead.

Q. Now, do I understand that the renewal of those benches, aggregating in value \$21,450, is, according to your theory, to be paid for out of current expenses? A. The setting of the retorts, yes; the renewals of the mouth-pieces when they wear out, yes, or when the stand pipes are broken, but when it comes to renewal of the whole thing, the arches, the hydraulic main, the pipes leading away, I should say that the 1 per cent. that I had spoken of for depreciation should cover it.

Q. What do you assume to be the fair average or normal life of that part of these benches, the renewal of which would not be

covered by current expenses? A. Oh, forty years, fifty years. The iron work would last longer, I think, but I have an impression that the brick arches would not last so long.

Q. What do you say is the average or normal life of a water gas plant from the date when it is put in new? A. If it is kept in repair, if it is painted, taken care of—

Q. I assume all that. A. I should say forty years, fifty years, somewhere along there; it is a long time.

Q. There has been no experience of course from which you can derive that opinion? A. No, sir; the water gas business is a new business, you know, comparatively.

Q. About twenty years old, or less? A. Let me see; it is a little over twenty years, I think, sir.

Q. A little over twenty years? A. Yes; I think it is twenty-five years.

Q. Now take the purifying boxes and the machinery in the condensing room, in the exhausters, what average or normal life would you assign to those? A. The purifying boxes,—the boxes themselves are made of cast-iron and they will last a long while. I am using some that I started to use in 1872, and I think they are good for many years yet; I should think forty years.

Q. And that would apply to all the machinery I have mentioned? A. If kept in repair, easily, yes, sir; I don't know but fifty years.

Q. What is the capacity of your purifying apparatus in Derby? A. My own? I had originally four 8 by 10 boxes. I put in addition two boxes 10 feet by 14, and I am now working the original four in couples, so that what would correspond in ordinary works to box No. 1 consists of two 8 by 10 purifiers, and box No. 2 is two 8 by 10 purifiers, and box 3 is one 10 by 14

Q. What is the capacity of that entire plant,—purifying plant? A. Of the purifying plant?

Q. Yes. A. I should not want to go much beyond three hundred and fifty thousand.

Q. What is the maximum output of your plant? A. Last winter two hundred and seventy-one, I believe.

Q. Thousand feet? A. Yes, sir.

Q. Now, I understood you to say yesterday that you considered that the mains would last for over a hundred years? A. I believe that to be so, yes, sir, in ordinary soils.

Q. Is it not a fact that gas companies throughout the country are taking up mains laid over fifty years ago and replacing them with new ones? A. Because they are worn out?

Q. For any reason? A. They are taking up mains, of course we all know, but I think most of them are used over again.

Mr. BROOKS. What?

The WITNESS. I think most of them are used over again, re-laid.

Q. For what purpose are they taken up then? A. Generally because a larger main is needed.

Q. The present practice then is to take up the small mains laid originally and replace them with larger mains? A. The present practice is to lay larger mains than were laid formerly, but I think the practice is to re-lay the mains so taken up.

Q. What is the object of taking them up then? A. It may be on a certain street you may want to put in a larger pipe, a feeding pipe to feed something beyond, and you take up the main already in. I know that has happened with myself, but in every case I have re-laid the pipe.

Q. But I understand you to say the gas companies quite commonly take up the older and smaller mains and replace them with larger ones? A. I did say so, but they re-lay the ones they take up.

Q. In the same place? A. No, somewhere else, where there is a demand for them.

Q. In the suburban districts? A. Yes, sir.

Q. And they replace—put back in the trench from which the old and small mains were removed new and larger mains? A. In some cases.

Q. In most cases? A. I think in most cases where they take them up they take them up for that reason; they want a larger pipe.

Q. Now, why do they take up these old and small pipes?

Mr. BROOKS. Why do other companies take them up?

Q. Why is it necessary to take up small gas mains from time to time? A. Because they have a demand for more gas than those pipes will supply, either on that line or at a point beyond.

Q. I understood you to say the present practice of gas com-

panies was to lay larger mains than formerly? A. I think it is, yes, sir.

Q. Is it customary now to lay mains less than three inches in size? A. To lay mains less than three inches? No, sir, so far as I know.

Q. Is it the custom now to lay mains less than four inches in size, and if so, to what extent? A. It depends on the company. There are some companies, I believe, that lay nothing less than four inches, but I think the majority of us are still laying three inch.

Q. But that would be the smallest size? A. Except under exceptional conditions.

Mr. MATTHEWS. That is all.

#### RE-DIRECT.

By Mr. BROOKS.

Q. Is there a material difference in the cost of labor or material in various places in New England? A. No great difference. I think brick are somewhat cheaper in Holyoke than they are with us, for instance, and I have had to figure on a very much lower figure than I should have to figure for a building with us.

Q. That is, you have figured on a lower price for brick than you ordinarily would figure? A. Very much lower.

Q. Very much lower. Whether or not it is customary when water gas plants are put in coal gas works, to make them large—very large or small in generating capacity? A. Large in proportion to the output at the time they are put in.

Q. Why is that? A. For various reasons.

Q. Name some of them. A. The experience has been everywhere that the gas business grows. Consequently, when we put in a plant we don't want to put it in for today, but for years to come.

Q. That is, when it is put in it is put in for not only the present but the future? A. Yes, sir. Then beyond that many of us are situated as they are in Holyoke, putting in the water gas plant as an auxiliary plant. We run our coal gas benches up to a maximum capacity, making the largest quantity of gas per



retort, and using the least amount of fuel and making the largest quantity we can per retort and per man employed. That is the most economical condition under which coal gas works can be run, and then we use the water gas plant to "come and go" on as the consumption varies, and then beyond that, there may be an accident in the coal gas plant, and we may have to rely on the water gas plant to make the entire product. All those reasons contribute for putting in a large water gas plant.

Q. And whether or not in your opinion it is good practice and desirable to run both coal and water gas plants in conjunction? A. I believe in it firmly; I am doing it myself.

Q. Do you know how deeply the gas mains were laid by the Holyoke Water Power Company? A. Mr. Snow told me three feet and a half on top of pipe.

Q. Whether or not is that good practice? A. It is good practice for that latitude.

Q. You say that in your valuation of the mains you took the prices for laying of these mains new in 1898? A. Yes, sir.

Q. Why? A. Because that was the simplest way of figuring, and because whatever little depreciation there is I intended to allow for in other ways.

Q. Now, you have been asked something about the life of a pipe, gas pipe. A. Yes.

Q. How long do you say, if they are properly taken care of and properly laid, the ordinary gas pipe should last—should live? A. Nobody knows. In ordinary soils I believe it will last longer than a hundred years.

Q. Well, whether or not this soil up there is anything extraordinary? A. I asked questions about it, and of course have observed. It seems to me it is the same soil that we have at Derby. Both are in river bottoms. It is a sandy, gravelly soil, as I understand.

Q. Well, is that substantially what you mean by ordinary soil? A. That is a good soil, I think, generally speaking.

Q. You said that you allowed profits or interest,—I think you said interest,—yesterday for depreciation. A. If I did it was a mistake.

Q. What did you mean in, say, the \$67,200 which comprehended two years, that you said it would take to establish the business? By that you mean the profits of two years? A. I do.

Q. I don't want any misunderstanding about it. Now, in that connection, what do you say the depreciation upon that entire plant is, in round numbers? A. Down to today?

Q. Yes. A. I should think from thirty to forty thousand dollars.

Q. Whether or not in your opinion that would be a liberal allowance for depreciation? A. I think forty thousand would be a liberal allowance.

Q. Then that would leave something like how many—fifty odd thousand dollars to be added to your first estimate of structural value, \$338,000? A. It would leave that amount, yes, sir.

Q. You spoke in reply to one of Mr. Matthews' questions of "value to the city"; what did you mean by that? I think it came in on your valuation. Did you mean by that anything different than any other purchases, when you spoke of a "value to the city"? A. Yes, I did.

Q. What did you mean, and what do you mean by "value to the city"? What figures did you have in mind? A. Why, its earning capacity, what it can be made to produce.

Q. Why could not it be made to produce,—why could it not have the same earning capacity if purchased by somebody else than the city? A. It can.

Q. That is what I am asking you. Did you mean when you spoke of "value to the city" anything different than value to any purchaser? A. It does seem to me that the city, owning the gas works, are placed in a somewhat different position from the individual.

Q. Yes? A. Or a corporation.

The CHAIRMAN. You are getting an opinion?

Mr. BROOKS. This was drawn out in cross-examination; I thought it ought to be cleared up; I think it ought to be cleared up.

Q. Whether or not the earning capacity that you give as your opinion is the earning capacity in the hands of any purchaser? A. Yes, sir; it is.

Mr. BROOKS. You don't claim anything else, difference in value, than to any purchaser?

Mr. MATTHEWS. No, unless perhaps under some theory of the law.

Q. And in your opinion with reference to the present earning capacity of the plant—present additional earning capacity of the plant aside from the actual earnings, did you take into consideration the population of the city of Holyoke? A. The present population?

Q. In forming your opinion of the present earning capacity of the plant? A. Yes, sir.

Q. You were asked if you were told whether or not some of the mills had put in electric light plants of their own; your response to that was that you were so told by Mr. Snow? A. Yes, sir.

Q. Do you recall whether or not he said to you in that connection that the same mills were also using gas? A. He has told me that all of them, I believe, used more or less gas.

The CHAIRMAN. Keep the meters in the mills, as you understand it?

The WITNESS. Yes, sir; they keep some meters, I don't know that they keep all of them.

Q. And when you speak of the increased consumption, whether or not it is your opinion that there is a present opportunity for increased consumption in Holyoke? A. Yes, sir, I believe it.

Q. How are you going to get your increased consumption unless you have a plant properly adjusted and properly fitted for the increased consumption? A. Well ———

Q. To take care of that? A. Of course you must have the plant.

Q. Then when you said that the increased consumption did not depend on the plant, was that what you really meant? A. I did not understand Mr. Matthews' question in that way.

Q. Well, I assume you did not. I want you to explain what you meant if you did say that increased consumption did not depend on the plant? A. I understood his question to be, does the increased consumption depend on the gas works themselves, the buildings, the machinery; is there any cause and effect there? I said no; there is no cause and effect. It is largely the men that manage that makes the increased consumption.

Q. The men that manage a particular plant? A. Yes, sir.

Q. Do you mean by that their care in having their plant to take care of an additional output? A. Sure; sure.

Q. Whether or not it is usual to use small pipe with large pipe as feeders? A. It is usual.

Mr. BROOKS. I think that is all I care to ask you.

#### RE-CROSS.

By Mr. MATTHEWS.

Q. One or two questions. I understood you to say that you considered it good practice to run both coal and water gas plants, and that you were doing it yourself? A. Yes, sir.

Q. You did not build a complete coal gas plant and complete water gas plant to start with, did you? A. The works originally were coal gas. It was built before the time of water gas plants.

Q. You afterwards put in a water gas plant? A. Yes, sir.

Q. You have never, yourself, in installing an entirely new gas plant, put in a coal gas plant and a water gas plant each of full capacity to do the business? A. No, sir.

Q. And you don't know any other gas engineer that ever did, do you? A. I cannot answer positively, but the new works being built by the U. G. I. Company in Philadelphia are just that, I think.

Q. The U. G. I. Company have leased from the city the municipal gas plant, have they not? A. Yes, sir.

Q. And the city of Philadelphia itself was making coal gas? A. And buying water gas.

Q. And buying water gas? A. Yes, sir.

Q. Now, the U. G. I. Company, lessee, has got the coal gas plant of the city and is going to supplement it by a water gas plant? A. And they are building a new coal gas plant in addition.

Q. To supplement the existing coal gas plant? A. Yes, sir.

Q. But they will not then have a generating capacity to the full demand of the works existing, both in the coal gas works and in the water gas plant?

Mr. BROOKS. That I object to.

The CHAIRMAN. What is the objection?

Mr. BROOKS. It seems to me it is not competent.

Mr. MATTHEWS. It is only on cross-examination. I asked the witness if he knew any case, and he mentioned this; that is all.

The CHAIRMAN. On cross-examination I think it is proper.

A. I don't know.

Q. Now, Mr. Nettleton, has your attention ever been called to the effect of electrolytic action induced by street railway cars on gas pipes? A. Yes, sir.

Q. And have you investigated that matter in Holyoke? A. I have not.

Q. You say—— A. I say further it is so well understood today that the trouble is rapidly ceasing. The railway people are putting in return wires to carry the current back to the generators, and I think that in a few years all trouble of that sort will be done away with.

Q. And they send the current out now over the trolley wire? A. Over the trolley wire and feeders; they take it back through the rail and also return wires.

Q. Now, if the street railway system is operated the other way: if it is operated by sending the current out through the tracks and motors, returning by the trolley, you are more apt to get the effect of electrolytic action, aren't you? A. Excuse me, won't you repeat that question? I think you are wrong.

Q. Very likely I am wrong. I understood you to say there had been a change in the practice? A. A change, yes, sir.

Q. Now, what was the former practice? Let us get at it in that way. A. The former practice was to send out the current through the trolley wire, and then they found the necessity of putting in feeders, and they put in feeders, but all the current went back to the generator through the rails; then as the bonds failed or were not perfect, more or less of the electricity escaped.

Q. Do you know how the street railway system is operated in Holyoke? A. I do not.

Q. Do you know whether they have return wires? A. I do not.

Q. You made no investigation of that? A. No, sir, but I

should suppose they could be requested to put them in as a matter of common sense.

Q. You mean, put in the return wires? A. I do, most certainly.

Q. Why should return wires be put in? A. To avoid just this trouble of electrolytic action on the mains, both gas and water, and on the service pipes, and also, I think, for economy in running.

Q. And if during any considerable number of years the street railway system had been operated without that return wire, you would expect to find electrolytic action on the gas pipes? A. Necessarily it depends on the places. For instance, we have one of the first railroads in the country, I think it was the second one started, and so far as I remember, we have only had one service used up from that cause.

Q. You told Mr. Brooks a moment ago that \$40,000 on the whole would be a fair allowance for the depreciation of this plant? A. I did, yes.

Q. Then that should be added to your estimate of \$338,000 in order to get the total structural value of the plant without reference to depreciation?

Mr. BROOKS. I don't understand that.

Mr. MATTHEWS. Is not that what you meant by your question?

Mr. BROOKS. No, what I meant is that they should add the whole ninety-six thousand to the three thirty-eight and deduct forty.

Q. What percentage of the value of the plant, less land, would \$40,000 be? A. About 14.

Mr. BROOKS. About 14 what?

The WITNESS. 14 per cent.

Mr. MATTHEWS. That is all.

#### RE-DIRECT.

By Mr. BROOKS.

Q. One other question. My friend asks you about the building of coal and water gas plants; do you know whether or not it is a frequent occurrence that where the two plants are run

in conjunction that as time goes on the coal gas plants are extended, enlarged, I mean by that? A. I don't recall any instance, but with the present price of coal and oil, coal gas works are bound to be extended.

Mr. BROOKS. That is all.

The CHAIRMAN. Any questions, Mr. Matthews? That is all, Mr. Witness.

The CHAIRMAN. Mr. Brooks, are you all ready to go ahead?

Mr. BROOKS. I am just talking with the witness here for a moment about his coming and going.

CHARLES H. NETTLETON, recalled.

RE-CROSS.

By Mr. MATTHEWS.

Q. When did you prepare the schedule and estimate of the structural value amounting to \$338,286.63? A. I think in January the principal part of the work was done.

Q. January, 1899? A. Yes, sir.

Q. You did not at that time add any part of the \$96,000? A. I did not, sir.

Q. When did it first occur to you to make that addition? A. I should think in February.

Q. Why wasn't it put upon your schedule which you submitted yesterday? A. Well, it seemed to me a simpler way, a more direct way of getting at it. Possibly I was wrong.

Q. You say it first occurred to you to make that correction to the estimate in February of this year? A. Some time the latter part of January or February.

Q. When was this schedule actually prepared; that is, when were the typewritten sheets made out? A. I should say in March. The copy that you have was printed by Mr. Brooks's stenographer, when the hearing was going on in Springfield.

Q. The original was prepared some time in March? A. I should think so, yes, sir.

Q. At that time did it occur to you to say anything about

the additional amounts aggregating \$96,000? A. I deliberately left them off.

Q. You made no memorandum upon your schedule to show?

A. I knew the question of depreciation was coming up. I thought I could answer by saying I allowed for it in another way.

Q. When did you get that knowledge or information? A. On general principles.

Q. That is, you assumed it? A. Oh, yes.

#### RE-DIRECT.

By Mr. BROOKS.

Q. One question I omitted, or rather, didn't think of it at the time. Have you examined the apportionment of salaries as stated by Mr. Humphreys and Mr. Foster, both of them, in the schedule that was put in here some time ago? A. You have shown me a schedule, (I was not present when it was put in,) which I presume is that schedule.

Q. That is, the salary of the general office man, and so on, on the assumption of the combination of the two plants under one company? A. Yes, sir.

Q. General office man \$3000, bookkeeper and collector, \$1000, clerk \$660, and three-fifths of this apportioned to the gas company amounting to \$2796, and superintendent's salary, standing at \$2640, making a total for the gas' company of \$5436, and then two-fifths to the electric company, with the superintendent's salary remaining at \$2220, making a total for the electric company of \$4084? A. Yes. What was the total amount of the two?

Q. About \$9500, a trifle more than \$9500. Whether or not you think that that was a fair basis of apportionment of salaries?

A. If I had the management, I should not apportion it in just that way, but the aggregate I believe to be fair for the amount of business they are doing.

Q. Comprehending the officers and office men of the concern? A. Yes, sir.



## RE-CROSS.

By Mr. MATTHEWS.

Q. You said, I understand, that you thought the profits should be allowed for two years between the commencement of this plant and the period when it would become profitable? A. Yes, sir.

Q. How long do you think it would take to construct the plant? A. It could be done in one season, but it would be at a considerable extra cost over what it would be if you took more time. But it could be pushed through in one season, I think.

Q. I suppose by one season you mean from spring to autumn, between frosts? A. Yes, sir.

Q. Eight or nine months? A. Yes, sir.

FREEMAN C. SHERMAN, sworn.

By Mr. BROOKS.

Q. What is your full name? A. Freeman C. Sherman.

Q. And where do you live? A. New Haven.

Q. What is your business? A. Manager of the gas works there.

Q. Mr. Sherman, how old a man are you? A. 66.

Q. How long have you been engaged in the gas business?  
A. 45 years.

Q. In what way or ways have you been engaged in the business? A. Well, always as manager of the works.

Q. That is, in the practical operation of the works? A. Yes, sir.

Q. Have you also made examinations from time to time of various plants with reference to placing a valuation upon them?  
A. Well, a few; two or three.

Q. And whether or not you are a stockholder in various gas companies? A. Yes, sir.

Q. And whether or not you have bought and sold gas stocks?  
A. Yes, sir, I am buying and selling.

Q. And known of their being purchased and sold? A. Yes, sir.

Q. And whether or not you know of the sale and purchase of gas plants? A. Yes, sir.

Q. Whether or not you are acquainted with the values of the various features that go to make up an entire plant? A. I am.

Q. Whether or not you have had experience in the construction of gas plants? A. Of those which I managed myself.

Q. How many of those plants have you managed? A. Four.

Q. Where located? A. Newport, R. I., Brookline, Mass., Worcester, New Haven.

Q. Did you have to do with the construction of those two Massachusetts plants? A. Well, I left nothing there but the walls that I did not put up.

Q. In both Worcester and Brookline? A. Yes, sir. I went to Worcester at the time there was an explosion there which destroyed a large portion of the plant.

Q. So that you reconstructed the plant? A. Yes, sir. At Brookline I was there eleven years; I left nothing but the walls of the building.

Q. Well, what do you mean; you left nothing when you went away? A. I left nothing but the walls of the building that I had not put up—nothing that I found there, I mean; and the same applies to New Haven; there is nothing there that I found there but the walls of the building—of two buildings; the rest has all been reconstructed.

Q. How long were you in Worcester? Eleven years in Brookline? A. Four years and a half in Worcester.

Q. Whether or not you were called by the Holyoke Water Power Company to make an examination of its plant for the purpose of forming and expressing an opinion upon what the fair market value is? A. I was called there last November.

Q. And you have made such an estimate? A. Yes, sir.

Q. Have you your estimate with you? A. Yes, sir.

Q. Is that a copy of the one you have (showing paper to witness). A. Yes, sir.

Q. How many of those have you? A. Four more.

Q. Let me have three of them and you keep one. (Witness produced papers.)

Q. You have given me four. A. I have another one; I had five.

Mr. BROOKS. All right. I will now offer the valuation, Mr. Chairman.

The schedule produced by the witness is as follows:

## VALUATION OF THE HOLYOKE GAS WORKS.

*By F. C. Sherman, December, 1898.*

Valuation of the land on which the gas works is located, 85,054 sq. ft. 50c. per sq. ft. . . . .	\$42,527.00
Land occupied by the gasometer on Bridge Street, 19,066 sq. ft. @ 45c. per sq. ft. . . . .	8,579.70

## RETORT HOUSE AND GENERATOR HOUSE.

Concrete foundations for same . . . . .	22,304.25
Gravel @ \$2 per yd. on ground; excavations, \$280; concrete, \$6.75 per cu. yd.; 244 cu. yds.; 1,509 sq. ft. flagging for floor of generator house @ 25c. per sq. ft., \$377.25.	
Brick walls for retort and generator house . . . . .	3,960.00
Walls contain 15,840 cu. ft. of brick work at 25c. cu. ft., 22 Holyoke bricks to the cu. ft.; price of brick per 1,000, \$6.50; price for laying, \$7.50.	
Foundations for 10 benches of retorts and water gas plant, including stone trimmings for windows . . . . .	1,081.50
Granite door sills, 250 ft.; window sills, 125 ft.	
Window caps, 10½ in. high, 150 ft.; cap sills for retort house windows, 225 ft.; iron window shutters, \$200 . . . . .	200.00
Carpenter work, including slating of roof . . . . .	2,231.00
10,000 sq. ft. slate @ 11c. per sq. ft.	
Flag floor in retort house . . . . .	875.00
3,500 sq. ft. @ 25c. per sq. ft.	
Foundations for water gas engine with stone . . . . .	96.00
Pit under carburetter, and digging the same . . . . .	25.00
Wood roof on engine house for water gas plant, \$37 . . . . .	320.00
Gravelling the same, \$33; carpenter labor on generator house and engine room, \$250.	
Roof over retort house and generator house . . . . .	3,984.75
126 ft., 6 in. long by 63 ft. wide, 79,695 lbs. @ 5c.	
	<u>\$66,184.20</u>

## WATER GAS APPARATUS.

One double superheater set, 6½ ft. diameter, including engine, blower, iron floor, elevator, small oil tank.	
Oil pump, elevator pump . . . . .	\$14,000.00
Two Manning boilers erected . . . . .	2,100.00
These boilers are 48 in. diam. by 15 ft. high, and contain 120 tubes.	

## STEAM CONNECTIONS FOR WATER GAS APPARATUS.

200 ft. of 3-in. steam-pipe, including fittings, coverings, and valves, and two injectors . . . . .	234.00
Pipe, \$25; covering, \$60; valves, \$44; 2 injectors, \$50; labor, \$50; fittings, \$5.	
Covering 2 boilers @ 25c. per sq. ft. . . . .	100.00

RETORTS AND SETTINGS FOR THE BENCHES  
(INCLUDING IRON WORK).

Foundations for retort benches . . . . .	480.24
4,002 ft. of rubble stone work @ 12c. per ft.	
Coal and coke wagons and retort house tools . . . . .	575.00
Pits in front of benches . . . . .	667.00
15,000 brick required, 250 ft. of cast iron coping and gratings.	
Brick work and settings for 10 benches of sixes . . . . .	12,220.00
Iron work for 10 benches . . . . .	7,100.00
Foundations for 2 Manning boilers . . . . .	96.00
10 iron chimneys for benches . . . . .	630.00
9,000 lbs. @ 7c., which includes cost of erecting; chimneys are 12 in. diam. by 20 ft. high.	
1 iron chimney for Manning boiler . . . . .	245.00
36-in. diam. by 30 in. high; 3,500 lbs. @ 7c.; cost of erecting is included in 7c.	

## OIL TANKS.

Brick tank for oil . . . . .	1,200.00
Digging for same, \$650; concrete, \$280; brick, \$224; coping, \$45.	
Iron tank for oil, 24 ft. diam. by 15 ft. high . . . . .	1,285.00
Estimated weight, 25,710 lbs. @ 5c.	
Add for fixtures . . . . .	110.00
	<u>\$41,042.24</u>

## OIL TANKS (Continued).

2 tanks, each 7 ft. diam. by 23 ft. long; estimated weight of same, 20,354 lbs. @ 5c. . . . .	\$1,017.70
1 tank, 6 ft. diam. by 20 ft. long; estimated weight, 6,912 lbs. @ 5c.	345.60
Excavating for the above 3 tanks . . . . .	75.00

## TAR WELLS.

Well No. 1, 23 ft. x 13 ft.; stock and labor; brick work, 1,777 cu. ft.	847.00
Well No. 2, 49 ft., 7 in. by 14 ft. wide by 6 ft. deep . . . . .	1,273.00
Contains 3,281 cu. ft.; brick work @ 25c.	
Well No. 3, 29 ft., 5 in. by 20 ft. diam. . . . .	1,288.00
3,259 cu. ft.; brick work @ 25c.	

Well No. 4, 10½ ft. diam. by 13 ft. deep . . . . .	\$190.00
427 cu. ft. of brick work.	
Tar well connections, 6-in. pipe and fittings . . . . .	350.00
257 ft. of 12-in. pipe in retort house . . . . .	\$161.00
2 12-in. hub valves . . . . .	124.00
4 12-in. ells, 1 12-in. tee (2,000 lbs. @ 2½c.) . . . . .	50.00
Labor connecting the above pipe . . . . .	75.00
	<u>410.00</u>

## CONDENSER ROOM, PURIFYING HOUSE, EXHAUSTER ROOM. .

Mason work . . . . .	3,560.00
Carpenter work, including slate roof . . . . .	2,599.00
10,024 cu. ft. of mason work in walls of building @ 25c.; 1,180 cu. ft. of brick work in piers for exhauster; 5,800 sq. ft. of slate 10c.	

## EXHAUSTERS.

2 12-in. exhausters with compensators, valves, by-passes, and specials, including 1 12 horse-power engine . . . . .	1,925.00
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## WATER WHEEL, GEARING, PENSTOCK.

Water wheel and gearing, including wheel pit, penstock, and tailrace	2,000.00
Dynamo, wiring, and lamps . . . . .	150.00
	<u>\$16,030.30</u>

## CONDENSER ROOM.

Tar extractor with tubes and scrubber chamber; also valves and by-pass valve, all cast iron.	
Tar extractor is 14 ft. long by 5 ft. wide by 12 ft., 6 in. high; estimated weight, 35,000 lbs. @ 6c. . . . .	\$2,100.00
Add for valves and by-pass . . . . .	225.00
1 multitubular condenser of wrought iron, 6 ft., 8 in. diam., and 20 ft. high; estimated weight, 23,000 lbs. @ 7½c. . . . .	1,725.00
Add for valves . . . . .	250.00
1 Isbell tar scrubber with gearing, 3 valves, specials; also a long shaft and pulley . . . . .	2,600.00

## PURIFYING HOUSE.

4 purifiers 15 ft. by 20 ft. by 3 ft., 4 in. deep, provided with trays and supporting tray bars, covers, and 1 floor carriage on tracks. The under connections are 12-in., connected to a dry centre seal valve. The purifiers are supported on 8-in. I beams on iron piers.	
Total weight of iron work, 144,152 lbs. @ 5c. per lb. . . . .	7,207.60
Add for trays, say 4,800 sq. ft., 12½c. . . . .	600.00

## METER.

1 station meter for city gas, 8½ ft. by 8½ ft.; 1 station meter for water gas, same dimensions as above.	
Both meters include valves and specials . . . . .	\$4,570.00

## LIME ROOM AND PIPE SHOP BUILDING.

Mason work on same . . . . .	2,061.00
Slate roof . . . . .	620.00
Carpenter work . . . . .	1,528.00

## WATER GAS, METER, AND VALVE ROOM.

Carpenter and mason work . . . . .	1,860.00
Carpenter work, \$774; mason work, \$1,086.	

## BLACKSMITH SHOP.

Carpenter and mason work . . . . .	506.00
Mason work, \$326; carpenter work, \$180.	

## BRICK PASSAGEWAY.

Carpenter and mason work . . . . .	360.00
Mason, \$219; carpenter, \$141.	

## HOLDERS.

Holder No. 1:	
Mason work . . . . .	7,632.00
Carpenter work . . . . .	2,388.00
	<u>\$36,232.60</u>

HOLDERS (*Continued*).

Holder No. 1 is 60 ft. diam. by 20 ft. deep.	
Holder weighs 41,000 lbs. @ 7c. . . . .	\$2,870.00
Iron work on posts in tank and gas-pipes, 12,900 lbs. . . . .	531.00
Holder No. 2:	
Mason work . . . . .	9,564.00
Carpenter work . . . . .	2,738.00
Holder sections are 63 ft. and 61 ft. x 19 ft. 10 in.	
Total weight of iron, including roof rings, 194,413 lbs. @ 5½c. . . . .	11,081.54
Holder No. 3 (Bridge Street):	
Mason work . . . . .	15,975.00
Carpenter work . . . . .	4,513.00
Iron work on roof . . . . .	650.00
Holder is 87 ft. diam. by 27 ft. high.	
Iron work, including inlet and outlet pipes, counterweights, chains, wheels, etc., 200,500 lbs. @ 5½c. per lb. . . . .	11,027.00

## CAST IRON PIPE ABOUT THE WORKS.

350 ft. 16-in. water gas main	35,000 lbs.	
200 ft. 12-in. water gas main	12,000	
820 ft. 12-in. gas main	49,200	
680 ft. 6-in. water pipe	22,440	
621 ft. 4-in water pipe	12,420	
	131,060 lbs. @ \$24 per ton	\$1,405.00
Estimate for labor in laying the above		300.00
6 12-in. valves for holders @		400.00

## COAL SHED.

Mason work	5,146.00
Carpenter work	3,570.00
Coal handling apparatus	3,500.00

## OFFICE BUILDING.

Mason and carpenter work	1,894.00
Mason work, \$694; carpenter work, \$1,200.	
Office furniture	150.00
Photometer	150.00
Horse shed	90.00
Store shed No 2	245.00
Board fences	250.00
Horse, buggy, sleigh, blankets, etc.	400.00
Map of city of Holyoke	150.00
	<u>\$76,599.54</u>

## MATERIALS AND TOOLS.

30 retorts @ \$25	\$750.00
2,126 lbs. castings for coal benches @ 3c.	63.78
Tools and supplies as per inventory submitted by Company	800.00

## STREET MAINS AS PER SCHEDULE SUBMITTED.

440 ft. 15-in.	100 lbs. per ft.	44,000
10,475 ft. 12-in.	60 " " "	628,500
5,964 ft. 8-in.	40 " " "	238,560
32,033 ft. 6-in.	28 " " "	896,924
28,746 ft. 4-in.	18 " " "	517,428
68,219 ft. 3-in.	12 " " "	818,628
145,877 ft.		3,144,040 lbs. @ \$26 per gross
ton.* Say 1,404 tons		36,504.00
65 tons of specials @ \$47 f. o. b. Holyoke		3,055.00

\* NOTE.—The price per gross ton delivered in New Haven in 1896 was \$22.40.



1,953 ft. 2½-in.	\$185.00 (includes the freight)
7,895 ft. 2-in.	567.22 " " "
2,824 ft. 1½-in.	156.80 " " "
6,776 ft. 1¼-in.	304.92 " " "
3,127 ft. 1-in.	109.44 " " "
30,000 ft. 1-in.	1,050.00 " " "

52,575 ft.	\$2,373.38	\$2,373.38
145,877 ft. of cast iron pipe @ 18c. per foot for laying . . . . .		26,257.86
52,575 ft. wrought iron pipe @ 12c. per foot for laying . . . . .		6,309.00

## METERS.

400-light	1	\$350.00	\$350.00
300-light	7	275.00	1,925.00
250-light	1	225.00	225.00
200-light	7	160.00	1,120.00
150-light	8	100.00	800.00
100-light	8	75.00	600.00
80-light	4	62.00	248.00
60-light	10	45.00	450.00
45-light	25	33.00	825.00
30-light	30	22.50	675.00
20-light	42	16.50	693.00
10-light	84	12.00	1,008.00
5-light	89	9.50	845.50
3-light	2,140	7.50	15,750.00
2-light	1	6.25	6.25

\$25,520.75 less 30% . . . . . 17,864.52

\$93,977.54

## GAS METERS ON HAND.

300-light	1	\$275.00	\$275.00
45-light	1	33.00	33.00
30-light	6	22.50	135.00
20-light	2	16.50	33.00
10-light	6	12.00	72.00
5-light	20	9.50	190.00
3-light	74	7.50	555.00

\$1,293.00 less 30% . . . . . \$905.10

## CAST IRON PIPE ON HAND.

115 ft. 15-in.	100 lbs. per ft.	11,500 lbs.
1,060 ft. 12-in.	60 " " "	63,600
7 ft. 8-in.	40 " " "	280
2,603 ft. 6-in.	28 " " "	72,884
534 ft. 4-in.	18 " " "	9,612
552 ft. 3-in.	12 " " "	6,624

164,500 lbs. @ \$24 gross ton,

say 73 tons @ \$24 . . . . . 1,752.00

## GATE VALVES ON STREET.

94 gate boxes	\$3.00	\$282.00	
1 16-in. valve	50.00	50.00	
5 12-in. "	40.00	200.00	
5 8-in. "	30.00	150.00	
26 6-in. "	20.00	520.00	
21 4-in. "	12.00	252.00	
36 3-in. "	8.00	288.00	
		\$1,742.00 gate valves and boxes . . .	\$1,742.00
			<u>\$4,399.10</u>
TOTAL VALUATION . . . . .			\$334,465.52
\$66,184.20	Real estate . . . . .		51,106.00
41,042.24	Street mains . . . . .		74,498.00
16,030.30	Gas holders . . . . .		68,969.00
36,232.60	Machinery . . . . .		76,349.00
76,599.54	Meters . . . . .		17,864.00
93,977.54	Buildings . . . . .		24,478.00
4,399.67	Piping stock on hand (sundry items) . . . . .		21,202.52
<u>\$334,465.52</u>			<u>\$334,465.52</u>

To this estimate for structural value should be added 5% for engineering services, and 3% for incidentals, in cost outside the land, and interest on the whole outlay for three years at the rate of 5% per annum.

Q. Mr. Sherman, what is your total valuation of the physical features of this plant. A. \$328,638.17.

Q. Whether or not there is anything included in those figures for engineering? A. Nothing.

Q. Anything for loss of profits or interest on investment? A. Nothing.

Q. Anything for contingencies? A. Nothing.

Q. Then with those added what would be the total valuation, structurally, of this plant? A. \$400,407.17.

Q. Whether or not, in your opinion, Mr. Sherman, those items which bring the fair market value of this plant up to this \$400,407.17, should be added? A. They certainly should be, in my opinion.

Mr. GREEN. If the depreciation is to be considered, that should be added?

Mr. BROOKS. No, it should be added to the structural value of the plant.

Q. From whom did you take the value of the land? A. From —

Q. Mr. Sickman? A. Yes, sir.

Q. Of the Holyoke Water Power Company? A. Yes, sir.

Q. And you put this in at a figure aggregating \$51,000? A. Yes, sir.

Q. \$42,527 and \$8,579.70? A. \$51,106.70.

Q. Whether or not the remaining valuations represent the fair market value of the remaining physical features of the plant, according to your own judgment? A. They do with these additions.

Q. Yes, that is what I mean. A. Yes, sir.

Q. The additions for engineering, contingencies, and loss of profits or interest on investment? A. Yes, sir.

Q. Mr. Sherman, how long were you engaged in the examination of this plant? A. Well, I have been up there three times.

Q. And whether or not you have made an examination of the various features? A. Of the works—around the works.

Q. Be kind enough to state in what condition you found this plant? A. The manufacturing department is in first class condition.

Q. What department was not first class, if any? A. That was all that I examined; I did not examine the distribution.

Q. You did not? A. I did not go over the street mains.

Q. Of course you did not dig into the ground to look at the pipe? A. I did not go around the streets to look at the pipes, but at the works; everything is in excellent condition.

Q. Now with reference to the pipe; how did you arrive at your estimate of value for the pipe? A. I understood that the city voted to buy these works in 1897. I took the price of the pipe in 1896.

Q. Well, is that lower or higher than the present price of pipe? A. It is lower than the present—today—price of pipe.

Q. If you did not examine the pipe, how were you able to arrived at a determination with reference to its condition? A. The pipes?

Q. The pipes, yes. I mean the mains, the street mains. I called them pipes. A. I made no examination of them.

Q. No, but you have placed a value on them. A. I placed a value on them, what it would cost to duplicate them.

Q. Exactly. And what led you to think that those pipes were in good condition? I don't want to ask you the leading question. A. The pipes that are in the ground today?

Q. Yes. A. I didn't ask anything—the pipes are in good condition, from what I have heard in regard to what you sell from them, and the loss.

Q. That is, you took into account the fact that they were distributing effectively?

Mr. GREEN. Isn't that leading?

Q. Whether or not you took into account the fact that they were distributing effectively? A. Yes, sir.

(Objected to; admitted.)

(Question read.)

A. I should say they were.

Q. Now, Mr. Sherman, what do you say about the life of the pipes—of the mains, I mean by that? A. Well, we have got them in New Haven that have been in 51 years, and I don't know of any reason why they should not last 51 years longer, or 100, as far as that is concerned. They are just as good as they were the day they were laid, as far as they have been dug up by me and come under my observation.

Q. Practically, the life is endless? A. There is no data in this country in regard to the life.

By the CHAIRMAN.

Q. What breaks up a gas main? What are the various causes? A. If the frosts—if the ground heaves it is bound to break the pipe; if there is a disturbance in the ground, and if they are laid shallow, and heavy teaming over it. Our pipes have been broken in New Haven by the road roller that the city puts on their streets.

By Mr. BROOKS.

Q. Have you known of their being broken by the laying of sewers or water pipes? A. No, I don't know very much about water mains; I don't lay them.

Q. No, I am asking if you know of the gas mains being broken by the city in laying of water pipes? A. Oh, yes.

Q. Or the digging of sewers? A. Yes, they break our pipes several times during the year. Our pipes are broken by the contractors for the sewers. The water pipe people don't break them, but the sewer contractors break them.

Q. With reference to the character of the buildings upon this plant what do you say, Mr. Sherman? A. They are in good condition, suitable for the business carried on in them.

Q. As to their probable life—— A. Well, I don't know——

Q. If the same care is taken as in the past? A. They will last, I was going to say, indefinitely.

Q. Take the various mechanisms in the building, what do you find with reference to the care that has been exercised about those? A. They show that they have been well taken care of.

Q. What do you allow for depreciation? A. Nothing.

Q. Why? A. We don't have any, if we apply the crucial test of dollars and cents to them.

Q. You say there isn't any? A. We don't have any, if you apply the crucial test of dollars and cents to it.

Q. That is, Mr. Sherman, when you say that in your opinion this plant has not depreciated, do you mean that it is as good today substantially as a new plant of the same character?

(Objected to.)

Q. Mr. Sherman, what do you mean when you say this plant has not depreciated? A. I mean that it is putting gas into the holder just as cheap as it did the first day that the apparatus was started, and that you could not put it in any cheaper if the apparatus was all thrown out and replaced by new.

Q. I will ask you this: whether or not, if you constructed a new plant there and put in new machinery, you would have any better? A. No, sir.

Q. What do you say with reference to the present opportunities for increase of business? A. Well, I haven't given the—all I have heard is the testimony that has been given here. I have not examined any of the reports of the Massachusetts inspectors.

Q. So you would not care to pass upon that? A. Not from anything except what I have heard here as evidence. On gen-

eral principles I should say Holyoke would be a good place to sell gas.

Q. What is that? A. On general principles I should say Holyoke would be a good place to sell gas.

Mr. GREEN. Just a minute; we object.

The CHAIRMAN. There is no question now pending.

Q. What were you about saying? A. I say it would be a good place to sell gas; that is, the consumption should increase in a place like Holyoke.

Mr. GREEN. We should like that stricken out; it is not of any importance.

Mr. BROOKS. Does the Court rule that should be stricken out? I am going to follow it up in a moment. I should not like a ruling upon it until I had asked another question.

The CHAIRMAN. All right.

Mr. COTTER. We do not regard it as very material, Mr. Green.

(Question and answer read.)

Mr. COTTER. It does not seem to me that is quite responsive, Mr. Brooks. Let it be struck out.

Q. You have been in Holyoke. Whether or not you know with reference to the number of people there? A. No, I don't know the number of people.

Q. Have you been told of the population of Holyoke? A. Yes.

Q. Whether you know its general character to be that of a manufacturing city? A. I knew of it; it is a manufacturing place.

Q. Mr. Sherman, I will ask you now, what is your opinion with reference to the present opportunities for the increased sale of gas in the city of Holyoke?

Mr. GREEN. We object.

Mr. COTTER. What examination has he made in Holyoke, Mr. Brooks?

Mr. BROOKS. Nothing, I suppose, except he has been there and he knows what the population is and the general character of the city.

Mr. COTTER. I understood him to say he did not study this question very much; he judges by what he has heard here.

Mr. BROOKS. I agree to that; I say that he has not. It is simply a question of the weight of the evidence. He is a man of large experience, perhaps the oldest man in the gas business in this country.

Mr. COTTER. Mr. Brooks, we do not think we ought to receive that. If you put in a hypothetical question you might present it in a different view. He judges by what he has heard here; how much he has heard and how much he remembers we do not know.

Mr. BROOKS. I do not do that; I do not do it on the ground of what he has heard in the testimony; I should not want to do that.

Mr. COTTER. We think there is better evidence.

Mr. BROOKS. Very well, your Honor.

Q. Do you know anything with reference to the growth of Holyoke? A. No, sir.

Q. Well, whether it has been rapid or slow? A. Only what I have seen in the papers.

Q. It probably was not true if you saw it there. Have you known of Holyoke since the first dam was built there? A. Yes, sir.

Q. What do you say about this plant; whether it is an up to date plant, or the contrary? A. It is an up to date plant.

Q. There has been something said about the holders and the housing of them. What do you say—whether it is bad or good practice to house your holders of this size? A. I approve of it.

Q. Now what do you say with reference to the generators and purifiers and their proportions and adaptability to each other? A. Do you want—

Q. I am endeavoring to avoid a leading question now. A. As I examine the plant I find— Do you want me to tell what the capacity of them is?

Q. No, I don't care about that, but whether there is anything wrong— A. There is nothing abnormal—

Q. —in their adaptability to each other. A. Nothing abnormal.

Q. What do you say about whether or not there is room for a new purifying building there? A. I examined the grounds, and I should say that there was plenty of room.

Q. Did you make an examination of the gates? A. Gates?

Q. Yes. A. What do you mean by gates; the gates of the——

Q. Of the plant.

Mr. GOULDING. Valves.

Q. Perhaps you call them valves. A. Beg your pardon?

Q. Perhaps you call them valves. A. For the streets?

Q. Yes, in the street mains. A. No, sir, I did not examine them; I only saw the plans, blueprints of the street mains. I didn't go around the streets to look them up.

Q. Now, Mr. Sherman, is there any more small pipe in this plant that is found usually in gas plants of the same size? A. Not as much.

Q. Now, whether or not there are as many of these street valves, or valves for the street mains, as in places of that size? A. I have had no experience in street valves.

Q. Are there usually in gas plants? A. Not out of New England; not out of Massachusetts.

Q. Whether or not it is a modern invention? A. It is a modern improvement.

Mr. GOULDING. Precisely what is a modern improvement?

Q. The valves for the street mains—having them, as I understand it? A. Yes, sir. I will say that I favor them.

Q. There has been something said here about damages; whether or not a certain sum per annum should not be set aside to await the result of damage lawsuits. What do you say about that? A. We have had no occasion for any such fund in my experience.

Q. In your experience of 45 years? A. Yes, sir.

Q. What do you say with reference to the location of this plant? A. Excellent.

Q. And in what way? A. For its drainage and for getting its material, and from being free from any odors which are—in a neighborhood where there would not be any criticism in regard to odors.

Q. Mr. Sherman, assuming that the net present earning capacity of this plant is the sum of \$33,600, what do you say in round numbers is the fair present market value of this gas plant



of the Holyoke Water Power Company? A. \$825,000 on a four per cent. basis.

Q. Why do you put it on a four per cent. basis? A. Well, that seems to be the market rate down in my part of the country.

Q. That is, in your opinion, a four per cent. basis is a fair basis? A. Yes, sir.

Q. Of capitalization? A. The way things go today.

Q. And whether or not it, in your opinion, had that value in January and February of 1898? A. Yes, sir.

Mr. BROOKS. Mr. Matthews, you may inquire.

### CROSS-EXAMINATION.

By Mr. MATTHEWS.

Q. What experience have you had, Mr. Sherman, in valuing gas plants for purposes of sale? A. Well, I was on the Wakefield, I believe—isn't that what you call it, out here?

Q. Is that all? A. Willimantic.

Q. The Willimantic? A. Yes.

Q. Any others? A. Not for sale. No other for sale that I know of. I appraised the structural value of the Bay State Works for the purpose of a hearing.

By Mr. BROOKS.

Q. Where are those; here in Boston? A. Yes.

By Mr. MATTHEWS.

Q. Those are all? A. What, sir?

Q. Those are all? A. I appraise the improvements of the lessee of a gas works in our State once a year.

Q. Of those cases only one—Willimantic—involved a sale? A. The Wakefield was sold, wasn't it?

Q. That was a case in court, wasn't it? A. I didn't go into any court. The selectmen asked me to put an appraisal on the works.

Q. That was the municipal lighting case of the town of Wakefield, wasn't it? A. I didn't attend any hearing.

Q. The Wakefield case was a similar case to this, as far as you know? A. As far as I know. It resulted in a sale to the town, I believe. I didn't appear before any commissioners. I suppose it was a private appraisal, perhaps, of the selectmen's, so far as I know. They paid the bill.

Q. The Bay State Gas Works was a litigated case before a commission, wasn't it? A. No, sir. Addicks wanted I should appear before a committee in the legislature on the valuation of his works.

Q. Yes. A. I put an appraisal on them, but he never asked me to appear.

Q. Let us see; in both these cases you appraised property, but you were not put on the stand? A. I was not put on the stand in—no, in neither of them.

Q. In the Wakefield case or the Bay State case? A. No, sir. Well, in the matter of Willimantic there was no litigation about it. They sold the works out.

Q. I have not come to that yet; my question was confined to the Wakefield case and the Bay State case. Now, at Willimantic, what was done there? A. The Willimantic Company agreed to sell out at an appraisal, and I was appointed one of the appraisers.

Q. To whom did they sell? A. They sold to the Citizens' Gas Company.

Q. What was sold? A. The whole plant.

Q. The stock of the company? A. Yes, the stock— No, they didn't take the stock; they took the works on appraisal.

Q. Didn't they buy the stock? A. No, sir.

Q. Sure? A. I am sure they didn't buy the stock.

Q. Was that company doing business in the town of Willimantic? A. Yes, sir.

Q. I mean the company whose property you appraised? A. Yes, sir.

Q. And the Citizens' Company bought them out? A. Bought them out.

Q. Bought their property? A. Bought the property.

Q. And took the list of consumers? A. Yes, sir.

Q. And all their business? A. Took the whole thing.

Q. What was the name of the Willimantic company; the Willimantic Company? A. Yes, sir.

Q. The Willimantic Company was distributing gas at that time? A. Yes, sir.

Q. And all its rights, whatever they were, were passed over to these purchasers? A. Yes, sir. I don't understand that they took the stock.

Q. But all the rights of the Company? A. All the rights of the Company went over to the Citizens' Company.

Q. Have you written for publication upon gas matters?

A. Well, I have read papers at the association meetings.

Q. Anything on the valuation of gas works? A. No, sir.

Q. Anything on the depreciation? A. No, sir.

Q. Anything on operation or profit or the earnings of a gas company? A. No, sir.

Q. Your papers have been confined to technical matters?

A. Technical matters exclusively.

Q. You said that you had managed or constructed works at Newport, Brookline, Worcester and New Haven. I did not understand which. A. Well, I have managed the works at all those places that I named.

Q. Managed them? A. Yes, sir.

Q. When were you at Newport? A. I was there from 1856 to 1859.

Q. Two years? A. Three years.

Q. Three years? A. Yes.

Q. Where did you go then? A. I went from there to Brookline.

Q. How long did you stay at Brookline? A. I stayed there eleven years.

Q. Till 1880? A. From 1859 to—

Q. 1870? A. 1870.

Q. And then where did you go? A. I went to Worcester. I went in 1871—really, December, 1870, I took charge of the Worcester works.

Q. How long were you there? A. Four years and a half.

Q. That brought you down to 1875? A. 1875, yes.

Q. Been in New Haven since? A. Yes, sir.

Q. Have you at any time in your career as a gas manager had occasion to build an entirely new plant? A. Except my own.

Q. You mean the New Haven plant? A. Yes, sir; and at Brookline. I built everything there but the—as I say, the walls of the building. Everything was all ripped out and renewed.

Q. In both Brookline and New Haven? A. Yes, sir.

Q. Also in Worcester? A. Well, essentially. The explo-

sion there destroyed the purifying plant and exhausters and condensers and did other damage. These were entirely rebuilt.

Q. But in all these cases there was a gas works in operation when you went there? A. Yes, sir.

Q. And therefore you have not had occasion to install an entirely new plant, including distribution system, buildings and machinery? A. No, sir.

Q. Is it customary, according to your knowledge or opinion, in establishing an entirely new gas plant, to put in both a coal and a water gas plant, each equal in capacity to furnishing the entire expected demand? A. In a place of any size it would be a wise arrangement.

Q. Do you know any place where it has been done? A. Where they have started out anew?

Q. Yes. A. I can't recall; I hardly know of any place that they do not have a water gas annex.

Q. Having had a coal gas plant previously? A. I don't know but very few places where they do not have a water gas annex, a supplementary plant, where there is works of any size.

Q. My question was whether you knew of any case where an entirely new plant had been established, and there being none in the place before or none owned by the company before, and where it had been thought wise to put in both a coal gas plant and a water gas plant, each of full capacity for the expected demand? A. Where they are starting out in a very small place it is better economy to start out with a water gas plant—a very small place; and then if you have business which will warrant your having a coal gas plant, put one up.

Q. Do you know any case where a company has started out with an entirely separate manufacturing outfit, one of coal benches and the other of water gas generators, each equal in capacity to the entire expected demand of the works? A. No, I don't know of any such place; I can't recall it now.

Q. Do I understand you to say that water gas plants are now generally erected? A. In a very small place, that would be my advice, if they asked it, to start off with a water gas plant; but in any place where they can afford it, they had better have two plants.

Q. You say that you consider four per cent. a fair basis for capitalization? A. Today.

Q. And what is your opinion based on? A. Actual sales.

Q. Sales of what? A. Gas stock and plants.

Q. Sales of gas stocks? A. Yes, sir.

Q. That is, you mean by that the property will sell upon a four per cent. basis measured by dividends? A. Yes, sir.

Q. You capitalize the dividends paid, if they are paid right straight along, at four per cent? A. That is what people buy them on, that is what I buy gas stocks on—the dividends.

Q. And it is that experience that has led you to assume a rate of capitalization equal to 4 per cent. for your higher value in this case? A. As a matter of fact, my own stock sells on a 3 per cent. basis.

Q. Three per cent? A. We pay 10 per cent., and it sells for 320 on a par of 100.

Q. Have you a surplus? A. Not much of any.

Q. Not much of any? A. No.

Q. Do you declare any extra dividends? A. We never did but one.

Q. You pay 10 per cent. right straight along? A. Right straight along.

Q. And your stock sells on a three and a what— A. 320, and we have a standing offer for the whole of it for 300. Another company that I am connected with has given an option on a 10 per cent. stock four for one,—that I am a director in.

Q. What rate of dividends would that be? A. I have not figured it. They would pay 400 for a 10 per cent. stock.

Q. Are you familiar with the ruling prices of gas stocks in Massachusetts? A. No, sir. There are none sold here to amount to anything. Once in a while there is a little Cambridge sells.

Q. The stocks which you are familiar with are those in Connecticut, about New Haven, I suppose. A. What I keep track of.

Q. Do you know anything about the market price at which stocks sell in Massachusetts—gas stocks in Massachusetts? A. Yes, sir; what they sell at at the brokers', what they sell at at auction; I know the price that they sell there for.

Q. What do you know as to the basis upon which Massachusetts gas stocks sell at auction? A. I bid on Cambridge stock; I bid 230 and didn't get it.

Q. What is that, a 10 per cent. stock? A. A 10 per cent. stock.

Q. Do you know any other cases? A. No. There is very little of the stock sold; next to nothing.

Q. Do you know any Massachusetts gas stocks that command a better price than the Cambridge? A. No, I don't know as I do. I think——

Q. Do you know what the stock——

Mr. BROOKS. What were you going to say, Mr. Sherman?

The WITNESS. There is none of them that you can get—— you get a little over four per cent. out of them, as far as I keep track of them.

Q. Can you mention any case except the one you have mentioned, of Cambridge? A. No.

Q. That is the only case that you can recall? A. That is, that sells on that basis?

Q. That sells on that basis? A. I recall Newton and Watertown, for I trade in that.

Q. What is the selling price of that stock; that is, the basis on which it is sold? I don't care so much for the actual price per share, but the basis upon which it is sold. A. Between four and five per cent.

Q. Isn't it 5 per cent? A. No.

Q. What are the figures for it? A. I think 157 is the last sale that I have kept track of.

Q. What does it pay? A. Eight per cent.

Q. And the last sale that you know of is 157. Can you mention any other cases? A. I see the Charlestown sold occasionally; but I don't keep track of it.

Q. What does that sell for? A. The shares are \$50, and they sell for 80—80 something, but I don't know what they pay over there.

Q. You are not, then, able to state in the case of the Charlestown Gas Company? A. I think they pay eight per cent.

Q. You are not able to state accurately? A. No.

Q. On what basis the stock of the Charlestown Gas Company sells? A. If they pay eight per cent. that would sell on a five per cent. basis.

Q. Any other cases that you think of? A. Not here in Massachusetts.

Q. Not in Massachusetts? A. Not in Massachusetts, no.

Q. In estimating the value—— A. I think I have seen sales of the Worcester stock at, I think, 220. That is a ten per cent. stock.

Q. 220? A. Yes.

Q. The highest price that you have mentioned for any Massachusetts gas stock is that which you think can be obtained for the stock of the Cambridge Gas Light Company? A. The highest that I have in my mind.

Q. And that is selling, according to the figures that you gave, at a little better than a 4 1-2 per cent. basis, isn't it? A. 235 I think it sold at the last time.

Q. And pays ten per cent.? A. Yes.

Q. On what basis would that be? A. As I figure it, 4.3, I think.

Q. 230, was it? A. 235.

Q. About 4.3, you said? A. Yes.

Q. And the other case that you have got would run from that to 5 per cent.? A. Yes, sir.

Q. Can you mention any others? A. Here in Massachusetts?

Q. Yes. A. No, sir.

Q. Why do you assume in this case 4 per cent. rather than the price which you have found, as a matter of experience, Massachusetts gas stocks sell at? A. Well, I am stating my experience down in Connecticut.

Q. That is, you have taken the Connecticut basis? A. Connecticut, New York and New Jersey.

Q. Have you taken into account the difference in the laws of Connecticut, New York and New Jersey on the one side, and the laws of Massachusetts on the other side, relating to gas companies? A. Yes, sir, I have.

Q. What difference have you assumed? A. Why, the business here is carried on under a commission.

Q. What inference have you drawn from that? A. Well, after keeping track of your legislature I do not draw any inference that adds very much to the value of the stock.

Q. You do not? A. No, sir.

Q. Don't you think that that fact ought to be taken into ac-

count in estimating the basis upon which the stocks of Massachusetts gas companies can be sold? A. It does not influence me in buying Massachusetts stocks.

Q. You find you can get Massachusetts stocks anywhere from a 4 1-3 to a 5 per cent. basis? A. Well, very seldom have a chance to buy them.

Q. You never had to pay more than that, did you? A. No, sir.

Q. You think the Massachusetts legislature is pretty active in its interference with gas companies, don't you? A. It appears to be.

Q. In New Jersey, New York and Connecticut you can capitalize your companies for about what you please, can't you? A. Yes, sir.

Q. In New York, New Jersey and Connecticut you can consolidate two gas companies? A. Yes, sir.

Q. Without going to the legislature? A. You have to go to the legislature in Connecticut to increase your stock; to put out stock and bonds you have to get leave of the legislature. I don't think they do in New Jersey.

Q. They don't have to in New York, either, do they? A. I guess not; I don't think they do.

Q. In New York two gas companies can consolidate without going to the legislature, can't they? A. Yes, sir.

Mr. BROOKS. Have we got to take his opinions as law in this case?

Mr. MATTHEWS. No; I am getting at the assumptions he uses. We are not putting this in as evidence of the New York statutes.

Mr. BROOKS. I withdraw my objection.

Q. And you understand, I suppose, that New York gas companies can consolidate with any amount of capital they choose? A. Yes, sir.

Q. There isn't any gas commission in Connecticut, New Jersey or New York, is there? No, sir.

Q. There is in those States no public tribunal which has the power to regulate the prices at which gas can be sold? A. The legislature in Connecticut can regulate the price.

Q. Yes. It can everywhere, can't it? A. I don't know about that.



Q. But you think the legislature in Connecticut has different powers from those of other States? A. Not that I know of. I don't know whether the other legislatures can control the price or not.

Mr. BROOKS. I suppose, if it becomes a constitutional question, I should like——

Q. I asked you whether there is any tribunal in Connecticut, New York and New Jersey, as distinguished from the legislature, which has power to regulate the prices charged by gas companies? A. No, sir, not that I know of.

Q. Whether or not you understood that in New York, New Jersey and Connecticut there is any tribunal, apart from the legislature, which must approve of the issue of stocks and bonds by gas companies before they can issue stocks or bonds? A. No, sir.

Q. Have you taken all those considerations into account in reaching your 4 per cent.? A. Yes. I am talking from an investor's point of view.

Q. Notwithstanding all these differences, you still think that Massachusetts gas stocks will sell as low as Connecticut, New Jersey and New York gas stocks? A. I don't know why they shouldn't.

Q. And you have that opinion notwithstanding the fact that you cannot mention a Massachusetts gas stock that sells better than a 4.3 basis. That is so, isn't it? A. I don't have any in mind.

Q. If there is nothing farther that you can say in explanation of why you assume the figure four as a proper basis for capitalization, I will ask you to explain in detail how you get the result of \$825,000? A. Well, on assumed profits of \$33,000, which I hear stated as the profits of this company, the Holyoke Gas Company.

Q. \$33,000 per annum capitalized at 4 per cent. makes \$825,000? A. Yes, sir.

Q. And have you made any investigation of the operation of this company for the purpose of determining its net profits? A. No, sir.

Q. You have simply assumed a figure which has been given you by others? A. Yes, sir.

Q. And what do you understand as to how the net profits of \$33,000 are arrived at? A. I don't know; I never have seen their books.

Q. Do you understand that to be the difference between gross income and operating expense account? A. I don't know.

Q. You don't know? A. Not from personal examination.

Q. I simply asked you what you understood? A. Well, I understood that was the net profits.

Q. That is, the difference between the gross income and the operating expenses? A. No, I don't assume that.

Q. What do you assume? A. I assume what they say, that there are \$33,000 profits. I don't know how they make it up. I haven't seen their books. I have seen the forms which the commissioners put out for gas companies here to keep their accounts by. I suppose it is fair to presume they have kept them according to those forms.

Q. What do you understand has been done with the item of depreciation? A. By this company?

Q. No, with reference to the figure of \$33,000? A. I don't know anything as to what they have done with it.

Q. You don't know whether anything has been allowed for depreciation? A. I don't know about it.

Q. You didn't ask? A. All I have heard at these hearings is what the profits are.

Q. You don't allow anything for depreciation? A. I don't allow anything.

Q. You don't believe in it? A. No, sir, not the way I carry on my business.

Q. What do you think a gas company should be operated for in percentage of the gross? A. Well, that was a new question. I see it has been stated here.

Q. I am asking you your opinion, if you have any? A. I haven't any opinion about it.

Q. You have no opinion about it? A. No opinion about it; I wouldn't look at it from that point of view.

Q. Have you had any experience in the matter? A. Well, I kept the books at Brookline and kept the books at Worcester; I have had nothing to do with the books at New Haven; kept the accounts.

Q. Did the Worcester Gas Company or the Brookline Gas Company ever pay out 40 per cent. of its income from sales?

A. I don't carry those things in my mind. I don't know what their income was.

Q. You kept the books there? A. I kept the books there, but of course I haven't got it in my mind now what they were 25 years ago.

Q. Do you know any gas company in Massachusetts that pays out 40 per cent. of its receipts from gas in dividends? A. I don't know anything about the business.

Q. Do you know any gas company anywhere that does? A. I don't know. All I know is they pay 10 per cent. dividends. I don't know what it comes from.

Q. Do you understand they pay out in dividends the whole net manufacturing profit of the business? A. I don't know.

Q. Don't you know as a matter of fact they make a large allowance for depreciation besides? A. No, sir, I do not. They didn't, when I kept the books, make any such allowance.

Q. Oh, you mean to say they made no book charge? A. There is no account, no such item on the books, at Brookline or Worcester.

Q. But there was a difference between the net manufacturing profit and the amount paid out in dividends, wasn't there, each year? A. There wasn't in Worcester.

Q. There is today, isn't there? A. I hope so.

Q. Do you know any gas company in Massachusetts of which that is not true? A. I don't know anything about Massachusetts gas companies, that is, the internal business. I have not followed these reports of the commissioners.

Q. Don't you know, when the stock of a Massachusetts gas company sells on a 5 per cent. or 4 1-2 per cent. basis, that there is a large surplus or difference between the amount paid out in dividends and the net manufacturing profit? A. No, I don't know any such thing.

Q. Did you ever inquire? A. I never inquire. All I want to know is what the dividends are. I base my bid for the stock on the dividend; I don't care anything about the bookkeeping.

Q. You have bid for the stock of the Cambridge Gas Company on that basis, haven't you? A. Yes, on the 10 per cent. basis.

Q. What is the profit of the Cambridge Gas Company, gross? A. I don't know.

Q. What does that company allow for depreciation besides the cost of operation? A. I say I don't know anything about their accounts.

Q. Don't you know that they earn annually a large sum of money in excess of dividends, which they put into their plant for depreciation? A. I don't know it.

Q. You don't know it? A. No.

Q. What other Massachusetts gas company did you mention as having been familiar with the price of its stock, besides Cambridge? Newton, did you mention? A. I see Charlestown stock quoted very occasionally, but I know nothing about the internal affairs or how they keep their accounts.

Q. Don't you know anything about the management of these properties? A. Nothing about them at all, only what they pay for dividends.

Q. You don't know how much they earn above the dividends and charge off or set aside for depreciation each year? A. I don't know anything about it; as a stockholder I have no interest in it.

Q. Do you know anything about what your own company does in that respect? A. No. We have no depreciation account at New Haven.

Q. I didn't ask you that. Do you know what your company does with its net manufacturing profits? A. Pays a 10 per cent. dividend and puts the rest into the works.

Q. Yes; puts the rest into the works. A. Yes.

Q. How much does the rest amount to? A. I don't know.

Q. You don't know? A. No.

Q. If your company pays 10 per cent. in dividends right straight along you assume it has got to earn more than that, don't you? A. I should hope so. I don't approve of any company dividing its bottom dollar.

Q. In other words, if a gas company can be operated for 60 per cent. gross, you don't believe in paying out the remaining 40 per cent. in dividends? A. Some years down there at New Haven we paid out every cent we earned.

Q. You don't believe in that as a regular thing? A. I shouldn't believe it was wise policy to pay out the bottom dollar.

Q. You mean all the net profits of the company? A. Yes. At Worcester we paid out every cent we earned.

Q. The Worcester Company is not doing that now? A. I don't know.

Q. You don't know any Massachusetts company that is doing it now? A. I don't know anything about their affairs.

Q. As a prudent gas manager, you would not consider it a proper, conservative and business-like thing to do, would you, to pay out all your net manufacturing earnings in dividends each year? A. Well, that would depend on the circumstances.

Q. You don't do that in the New Haven Company, do you? A. Some years we do.

Q. But you don't do it right straight along? A. Not right straight along. Some years we have paid out more than we earned.

Q. You take the difference out of your surplus, don't you? A. Well, I don't know about that. If we pay more than we earn we certainly take it out of the surplus.

Q. I understood you to say a moment ago that New Haven earned more than the 10 per cent. paid out in dividends, on the average? A. On the average.

Q. Then you consider that a properly managed gas company, don't you? A. Yes, sir.

Q. You don't think it would be a prudent and proper thing, from a business standpoint, for the New Haven Gas Company to pay out all its net earnings in dividends, do you? A. Well, they could leave enough in the treasury to keep the plant up to a high state of efficiency.

Q. How much does the New Haven Company earn above its dividends, net? A. Well, it isn't proper for me to answer that question. I am only a servant of the company. I have no business to give away their business.

Mr. BROOKS. There is no objection, I think.

(Recess.)

**AFTERNOON SESSION.**

Mr. COTTER. Mr. Brooks, if we understood you correctly this morning, we think you are under a misapprehension in regard to the exclusion of the gas commissioners' reports. We do not understand that that was offered. At all events, we excluded it in the examination of a witness. We remember that the question was asked as to the conclusion that he reached after examining the report, the result of that examination.

Mr. BROOKS. Yes.

Mr. COTTER. Well, we excluded it on this ground, that it not having been in evidence, we did not think it quite definite enough. We thought it was proper to exclude it. We did not state the ground.

Mr. BROOKS. We discussed the question of the propriety of the introduction of the report in that connection. I did not care to introduce the whole report, but certain parts of the report. As I understood it at the time, it was rejected on that ground.

Mr. COTTER. Now have you reference to an offer in this room?

Mr. BROOKS. Yes, from Mr. Humphreys. That is, I purposed to show by him, taking certain statements from the report of the gas commission, what the result would be as he figured it, taking the commissioners' statement as the basis of his conclusion.

Mr. COTTER. We did not discuss that, but I am free to say that was how it rested in my mind, and what induced me to rule as I did. This report is not in. We did not know to what extent he made an examination, and we thought we ought to know just the ground on which he bases this opinion, and, as I remember, we did not give any reason. That was the reason on which it was excluded.

Mr. BROOKS. Then very likely we may desire to offer the same evidence later, and we will ask your Honors to make a ruling.

Mr. COTTER. We felt there ought not to be any misunderstanding in regard to that, and it was only just to you to make this statement.

Mr. BROOKS. Yes.

FREEMAN C. SHERMAN, cross-examination resumed.

By Mr. MATTHEWS.

Q. Are you able and willing to state the annual earnings of your gas company in New Haven? A. I am able, but not willing.

Q. Do you know, and are you willing, to state what the difference between the net earnings of the company and the amount it pays out annually for dividends?

Mr. BROOKS. That I object to.

The WITNESS. I don't have anything to do with the up-town books, and I don't know what the proportion would be. As a general thing I know what the net income is.

Q. You know what they pay out? A. Yes.

Q. Then you know the net income? A. Yes.

Q. But you don't want to state it? A. No. It is not my province to give away my company's business.

Mr. MATTHEWS. We think the Court will consider the question material. This witness has testified that his value is reached by capitalizing the net profits of this Company. Now, it would no doubt appear, if this witness answered this question, that it is the divisible profits, the amount of the net profit that is available for dividends or interest purposes, that fixes the value of the stock; and the witness has already testified that he reaches his valuation upon the basis of stock. He has placed his valuation, as a rule, upon stock. He has admitted that the value of stock is dependent upon the dividends paid. That is, upon the divisible profits of the Company, and not upon its net earnings. We have a right to show, it seems to me, that there is for this Company and for all the other companies that the witness has mentioned, and in the case of any gas company that could be mentioned, a large difference between the net profits and the divisible profits, that is, the amount avoidable for dividends. We should concede, perhaps, if it is proper to capitalize earnings, that the thing to capitalize is the divisible net earnings of the company; but we should deny upon any theory of value based on earnings that it was proper to capitalize the entire net earnings of the company, as is the attempt

in this case. Now, the witness's starting point, upon which he has formed his opinion, is based upon what he has seen in his own company, what he knows of its earnings and the value of its stock, and on what he knows concerning the market value of the stock of the other companies that he has mentioned. We think, therefore, that all the circumstances relating to those companies, showing the net earnings, the amount paid out in dividends and interest, and the difference between the two is admissible.

Mr. COTTER. We will bear in mind, of course, Mr. Matthews, that the witness objects for the reason stated. We do not think we ought to compel him to answer.

Mr. BROOKS. I would like to raise the other question. Besides his objection, we say it would not be competent evidence, anyway, because it would involve a collateral inquiry into every other expenditure, how much is spent for repairs, what is the extent of renewals, whether or not a certain sum might or might not properly be set aside for depreciation. I don't care to have it go out, if I can help it, simply upon the ground of his objection to disclose his master's business. I say it is not admissible as a matter of law. Besides, all this is drawn out on cross examination.

Mr. COTTER. He objected on that ground, and no other question was raised.

Mr. BROOKS. I desire now to raise the question of the legal impropriety of this evidence.

The CHAIRMAN. It is excluded.

Mr. GOULDING. We only wanted it to appear that we claimed it is incompetent.

The CHAIRMAN. It lies in my mind that such a question is for the purpose of qualifying a witness as an expert. You cannot go into matters of detail, unless he himself volunteers. Otherwise we should be forever trying one of these cases. I do not believe it is admissible on any ground. I should exclude it altogether myself.

Mr. MATTHEWS. Do I understand it is your Honor's wish to have that question put?

The CHAIRMAN. We do not wish it argued. You can ask an expert what towns he has done this business in, and so on, for the purpose of qualifying him, and you may go into details



upon cross examination. But I do not know of any way in which you are allowed to go into collateral matter. Perhaps it is largely in the discretion of the Commission, but I do not see any importance to be attached to this anyway.

Mr. MATTHEWS. As far as the ruling goes, I suppose it is discretionary with the Court on cross examination, but I should assume that cross examination would not be restricted concerning the information and experience which the witness has used in order to formulate his opinion of value. As to the materiality of the inquiry, I regret that I have not made myself understood.

The CHAIRMAN. I understand, but what does it amount to?

Mr. MATTHEWS. It amounts to \$800,000 in this case, upon the theory of the Company. Admitting, for the purpose of argument, that it is proper to take earning capacity into account, and of course it is only in that aspect of the case that this line of inquiry is pertinent anyway, we maintain that the earning capacity that can be taken into account is the amount that will reach the stockholders, not merely the difference between gross income and expense. There are other sums which must be annually laid aside by every gas company in one way or another, in order to keep its assets unimpaired, whether you call it a sinking fund, or renewal fund, or depreciation fund. Whatever you call it, the fact remains that a gas company that would proceed on the theory of paying out all it earns in dividends would soon be in the Court of Insolvency. The attempt is being made here to take the entire net earnings of the company as a basis of value. We contend that even upon the assumption that earnings are material and relevant as evidence, they can only be so to the extent that they would be available for dividends, and we shall show that the available or divisible profits here are only about half the net profits.

The CHAIRMAN. You may ask the witness the per cent., but beyond that, what good is it?

Mr. MATTHEWS. May I ask him besides how much per cent. they fail to distribute, and put into their plant annually?

Mr. GOULDING. It is a company down in Connecticut.

Mr. MATTHEWS. It is a company he is connected with.

Mr. GOULDING. You might as well say that when a man can show net earnings, you can show that he ought to lay up 50 per cent. instead of spending it for liquor. The stockholders are not here. We are not trying the value of this stock. We are trying the value of the property and the earnings coming to the company, whether they see fit to distribute them, or do what they have a mind to with them.

Mr. MATTHEWS. Of course this inquiry would not be competent on direct examination, but this witness is under cross examination, put on by the other side, and he has testified that his valuation in this case is predicted upon the current market price of the stock of a gas company. He has testified that that is gauged by the dividends annually paid.

Mr. GOULDING. Wasn't that all brought out on cross examination?

Mr. MATTHEWS. Certainly. Now I want to find out the difference between that and the net earnings of the Company, to show how much the companies upon which he has based his valuation and formed his estimate of value lay aside in the ordinary course of business, to put into their plant, to keep their assets and capital unimpaired.

Mr. BROOKS. It seems to me what settles this whole question is, he has not testified that he based it on the earnings or distributions of the New Haven company.

Mr. MATTHEWS. That may be; but the only companies he has testified about are these three or four.

The CHAIRMAN. You may ask him what profits are usually obtained, and what is done with that profit, but I don't think we ought to allow you to go into facts concerning this company. I think it would open up conditions that would disturb us in the field we are in.

Mr. MATTHEWS. I think we have already asked him that question, and I think he has stated he didn't know, but he has said that he knew what was done in New Haven; and that was a part of the information that he used, or ought to have used, to formulate his opinion in this case. Perhaps I will ask the question in order to be certain. Moreover, as Mr. Green has just suggested to me, this witness's evidence is based ostensibly and

admittedly upon his experience with the New Haven Gas Light Company. He took 4 per cent. because he thought it was a fair rate at which to capitalize the earnings of a gas company in New Haven. I think he has brought the New Haven Gas Light Company into this case, and that we are entitled now to get what it earns gross and what it pays out in dividends.

The CHAIRMAN. We will exclude the question and save your rights.

Mr. MATTHEWS. Does the ruling go to the extent of excluding the question, or simply does it go to the extent of excusing the witness who has declined to answer?

Mr. COTTER. He has declined to answer.

Mr. MATTHEWS. If that is as far as the ruling of the Court goes, I am content.

Mr. COTTER. I might add that evidence in regard to this particular company in Connecticut we do not consider material.

Mr. MATTHEWS. Do your Honors exclude the question on that ground?

Mr. COTTER. Yes.

Mr. MATTHEWS. On that ground, we beg to except.

Mr. COTTER. All right.

Q. What is your objection to stating, Mr. Sherman?

Mr. BROOKS. I object to it.

Mr. COTTER. We do not think that question ought to be asked.

Mr. MATTHEWS. I will withdraw it.

Q. You mentioned the Cambridge Gas Light Company, and the price at which its stock was selling? A. Yes, sir.

Q. Do you know how much the Cambridge Gas Company charged up for depreciation last year? A. No, sir. I have not seen their report, and I never attend their meetings.

Q. Do you know how much the Brookline Gas Light Company charged up for depreciation last year? A. No, sir.

Q. Do you know how much the Charlestown Gas Light Company charged up for depreciation for that period? A. No, sir.

Q. Did you ever make any effort to find out? A. No, sir.

Q. Perhaps I have not asked you this question, Mr. Sherman: What proportion of the net earnings of a gas company

should in your opinion, in a well managed corporation, be paid out in dividends?

Mr BROOKS. We object to that. Our position is that this is not a question between the City of Holyoke and the stockholders. It is a question between the City of Holyoke and the Holyoke Water Power Company. It makes no difference, no material difference, what the Holyoke Water Power Company chooses to do with the profits. They can keep them all from the stockholders, or they can put them all out to the stockholders.

(Question admitted and the petitioner excepted.)

The WITNESS. All there is left after the works are put in first class condition.

Q. What percentage? A. I have no percentage about it. Some years, as I have said before, we have paid out dividends we have not earned, and there are no two years alike. Our earnings are more one year than another, and you couldn't be certain by any one year. I would want a series of years.

Q. My question was intended to cover a series of years. A. I haven't any figures in my head, and really wouldn't want to answer. I have stated my objection to answering.

Q. You say that the company can pay out all its net earnings, except what is needed to keep the plant in first class condition?

A. Yes, sir.

Q. How much is it, in your opinion, correct practice to lay aside for that purpose, measured by percentage? A. I manage the manufacturing department, and I want to keep it up in first class condition, without any regard to dividends, or what there is left. The stockholders can have what I have left, after keeping the plant up in first class condition, and it is never any two years alike. I haven't got any percentages on it.

Q. How much, in your opinion, figured out in any way you please, should be allowed on the average, in the way of ordinary expenses, to keep the plant in what you call first class condition?

A. I have no figures. Take this year. If any of my apparatus gets out of date or outgrown or obsolete, it comes out and new apparatus goes in.

Q. Would you say you ought to allow as much as 25 per cent. of the the gross income? A. I have no figures at all.

It would be one year one thing and another year another. Sometimes my expenses have been so great that there was not enough left to pay the 10 per cent. dividend.

Q. Not enough to leave the plant, as you call it, in first class order? A. Yes, sir.

Q. I understood you to say that when you were in Brookline, during your connection with the Brookline Company, the works were practically rebuilt? A. Yes, sir.

Q. And you were with the Brookline Gas Company about four years? A. I was with the Brookline Company 11 years.

Q. How long had that Company been in operation when you first became connected with it? A. I went there in 1859, and it was started in 1853.

Q. And you left in 1870 or 1871? A. Yes, sir.

Q. That is, about 17 years after the works were started? A. Yes, sir.

Q. During the time you were with that company you tore out and built over again, practically, all the works, except the shell of the buildings? A. Yes, sir.

Q. So that there was nothing left but the outside walls? A. Yes, sir.

Q. In other words, in a space of 17 years there was an installation of that plant, of the machinery and apparatus, and everything at the works, except the walls, was made over? A. Yes, sir.

Q. Do you mean that the machinery was replaced with new machinery? A. It was new. It had been outgrown.

Q. It was outgrown, and had been replaced? A. Yes, sir.

Q. That is a very common thing with gas companies? A. Yes, it is, in prosperous towns.

Q. As you reach the maximum capacity of a plant, you have to throw it away, and put a plant of larger capacity in its place? A. Yes, sir.

Q. You were with the Worcester Gas Light Company four years? A. Four years and a half.

Q. Do I understand that during that period of four years and a half most of the Worcester gas plant was made over? A. All of it which was destroyed by the explosion was made over.

Q. Did the explosion occur while you were with the com-

pany? A. No. It killed the former manager, and I took his place.

Q. That necessitated the reconstruction? A. Of the purifying plant, exhauster and condensers.

Q. Was the retort house injured? A. Not very much.

Q. Or the holders? A. The holders were not injured.

Q. You had simply to repair them? A. Well, we had to repair the retort house, slightly. The chief expense was the new purifying house. The condenser and exhauster were in the same condition and had to be rebuilt to the foundations.

Q. Did you have a similar experience at Newport with regard to the reconstruction of the works? A. No, sir.

Q. Have you had a similar experience in New Haven? A. Yes, sir.

Q. What was that? A. We entirely rebuilt the works with the exception of the walls.

Q. You went to New Haven first in 1875? A. Yes, sir.

Q. How soon had you got the plant entirely rebuilt? A. We have been rebuilding it ever since.

Q. What year would you say the process of rebuilding was complete? A. Well, it isn't complete yet.

Q. When was the New Haven Gas Company first established? A. 1848.

Q. And during your connection with the company everything at the works has been replaced? A. We have enlarged it and replaced it. I am going to enlarge the plant in certain parts this year.

Q. Will that involve replacement? A. Yes, sir.

Q. That is, you will have to take out some of your machinery? A. No, it is what we call the revivification house.

Q. What are you going to do with it? A. We are going to take out the old revivification house and supplant it with a new one, a large one. It is a wooden shed at the present time, and I am going to make a brick one.

Q. In reaching your valuation of \$825,000 you have assumed, I suppose, that the company's business will continue as it is, as prosperous as it is today? A. I have not assumed anything.

Q. How do you reach that figure of \$825,000? A. What the earnings were for the last year.

Q. You must assume those earnings are going to continue?  
A. No, I don't assume anything about it.

Q. Suppose the earnings would drop off suddenly tomorrow, would the plant be worth just as much? A. The stock wouldn't sell for as much if the dividends dropped off.

Q. Suppose the business of the company would drop off tomorrow one-half, would you value the plant just as much?

A. I am talking about last year. I don't know what is going to happen the balance of this year, or next year.

Q. You assumed that there was an income of \$33,000?  
A. Yes, sir.

Q. Did you assume that the income was earned last year and had ceased? You are valuing the plant at the present time?

A. I put my value on the plant on the structural basis of last December, and on the earning basis this 20th day of April.

Q. The present time? A. Yes, sir.

Q. You assume the plant is now earning \$33,000 a year?  
A. For last year. I don't assume anything. That is the report I have heard here, that it earned \$33,000.

Q. But you say it is earning that at the present time? A. Yes, I suppose it is.

Q. On that basis it is worth \$625,000? A. On the 4 per cent. basis, yes.

Q. Suppose it should earn during the coming year only \$20,000? A. That would be the other fellow's loss, who bought the stock, if he didn't get his dividends.

Q. The plant wouldn't be worth as much? A. It wouldn't be to me, but today I will bring parties who will take that stock off the company's hands, on the presumption that that is the correct statement of earnings at 4 per cent.

Q. They wouldn't pay that price unless they thought the earnings would continue? A. Not very likely.

Q. It is perfectly certain that purchasers wouldn't do that?  
A. I wouldn't.

Q. That is the basis upon which you have made your figures?  
A. Yes.

Q. And have you assumed that all the other conditions will probably remain just the same as they are, with regard to the locations in the streets, and absence of competition, and so on?

A. Yes, sir.

Q. Now this valuation of yours is based upon the business of the company? A. On the earnings of the company.

Q. That is, the business of the company?

Mr. BROOKS. Is that really quite fair?

Q. If the company is to earn \$33,000 per annum, what price do you assume it will get for its gas? A. I don't assume any price at all. I don't know what they're getting, only what I heard here. I heard \$1.30 at this hearing. I don't know by any actual asking what they are getting, from any officers of the company.

Q. If the company earns less than that it would not be worth as much money? A. If they reduce the price, probably the consumption would increase.

Q. If the consumption did not increase, and the price was reduced, the company wouldn't earn so much? A. I haven't supposed they would reduce the price. I don't suppose anything about it. I am merely taking the returns of last year.

Q. You are assuming either that the price will continue the same, or, if the price is reduced, the consumption would be increased? A. I am buying and selling gas stock, and I go entirely by the prices of stock quoted. I saw a superintendent yesterday, and he said it had gone down today. It made no difference with me.

Q. Supposing it had gone down 10 cents? A. It would make no difference if they paid 10 per cent. dividends.

Q. Suppose they were making gas at \$1.30, and the price should go down to 50, wouldn't that make a difference? A. I should want to make some inquiries, if they made such a cut as that.

Q. You would want to be satisfied that the business was going on as prosperously as it is today, wouldn't you? A. Yes, but as a matter of fact I don't go into any of these details.

Q. You assume that the conditions will be substantially the same as they are? That is all I mean. A. Yes, sir.

Q. Coming to your structural valuation, where did you get the estimates of quantities? A. Well, in those buildings?

Q. In your estimate. A. I figured them myself, and then I had a master builder in New Haven make figures.

Q. Did you figure them from the plans or from the buildings?



A. From the plans, that were sent down to me. I made no actual measurements.

Q. You figured the quantities from the plans that were here this morning? A. Yes, sir.

Q. Where did you get your prices? A. Well, the Holyoke people sent down their prices, but I will say that those prices, when they were made last December,—I will bring the party who made those prices, who will come up and duplicate the work for those prices now.

Q. I see you have allowed \$14 for brick laid? A. Yes.

Q. In the retort house? A. Yes.

Q. Where did you get that? That is \$6.50 for brick, and \$7.50 for laying? A. That is what the Holyoke people sent word down that they paid, \$6.50 for brick.

Q. They didn't give you a schedule of what they paid for labor, then? A. Yes, sir, but I didn't use it entirely. Some of their prices were lower, and some higher.

Q. I understand you took this price at \$14 from statements made by the company? A. They gave the price which bricks sell for in Holyoke, before they are laid.

Q. What price was that? A. Six dollars and a half.

Q. Where did you get the \$7.50 for laying? A. That is what my boss mason asked me. That is what we pay.

Q. That is what he told you? A. Yes, sir.

Q. You didn't get that price from anybody in Holyoke? A. No, sir.

Q. Did you make any inquiries about Holyoke on that subject? A. No, sir, only I know I would go there and build for those figures.

Q. Suppose somebody else would do it for less? A. That would be to the advantage of the other fellow. They might go up there and lay for five.

Q. You haven't made any attempt to find out? A. Only what the Holyoke people sent down word.

Q. They sent down the price of brick per thousand at six dollars and a half? A. Yes, sir.

Q. And you added seven dollars and a half for laying, didn't you? A. Yes, sir.

Q. Now, I ask you whether you made any attempt to find out

what you could get brick laid in the wall for in Holyoke per thousand? A. Not a thing, but I know a responsible man that will go up there and do that work today, if anybody will take it up that is all right.

Q. Do it, and make a profit? A. Do it and make a profit, I suppose.

Q. You don't know whether masons in Holyoke wouldn't do it for less? A. The price they quoted for masons is more than we pay, or as much. They gave me a list of the prices.

Q. They gave you a list of prices by the day? A. Yes.

Q. You didn't inquire what you could get brick laid for by the thousand? A. No, not in Holyoke.

Q. Isn't that a common way of paying for brick work? A. I got a price there.

Q. Isn't it a common way to pay for brick work, by the thousand, laid? A. Well, in our case there we let the job right out, to put this building up for so much money; no price talked about by the thousand. That is the way I let out my work.

Q. That is a contract for the whole building? A. That is for the mason work.

Q. A lump sum? A. Yes, a lump sum.

Q. Suppose you were not doing it in that way? A. I have done it both ways, so much a thousand.

Q. A thousand laid? A. Yes.

Q. But you made no attempt to inquire what the price was in Holyoke? Q. I made no attempt to inquire in Holyoke, but the party who made these figures is a responsible man, who will go up there and do the work at the price named.

Q. I see you have allowed 11 cents per square foot for slate, carpenter work including slating? A. That is on the retort house.

Q. Where did you get that figure from? A. I got that at New Haven, and got it—the same figures that they sent down on their list.

Q. Did they send you the same list they sent Mr. Nettleton, do you know? A. I don't know; I don't know what list they sent him.

Q. Have you got the list they sent you? A. Yes.

Q. Will you produce it, please? Have you got it here? A. I didn't pay particular attention to that list. I said to this man, "What will you go up there and do that work for according to the plans submitted?"

Q. You have just handed me the schedule of prices sent to you by the Holyoke Water Power Company? A. Yes.

Q. Now let me call your attention to 100 square feet of first class slate roofing. How much is that per square foot? Ten cents, isn't it? A. Yes. I put it 11 cents for the retort house. That is a different class of work, the retort house.

Q. How different? A. It is put on to iron roof, costs more. One place there I have got it in my estimate at 11 cents, and another at 10.

Q. Will you look at that part of your schedule that relates to the tar well, and I will call your attention to the charges for brick work there, 25 cents a foot? A. 25 cents a cubic foot.

Q. Have you got the place? A. Yes.

Q. You have got an item of 3,281 cubic feet of brick work at 25 cents, and you have got it carried out \$1,273? A. Well, that means 3,281 feet?

Q. Yes, 3,281 cubic feet of brick work at 25 cents equals \$1,273. How do you work that out? Just try it, won't you?

Mr. BROOKS. The mistake might be in the number of cubic feet.

Mr. MATTHEWS. I don't know. I make it \$820, a difference of \$453 less than you have it. A. That seems to be right.

Q. That is, my figure seems to be right? A. Yes.

Q. Now take the next one: 3,259 cubic feet of brick work at 25 cents. You have got it carried out at \$1,288. I make it out that it ought to be \$815. See if I am not right.

Mr. BROOKS. Will you let me ask one question?

Mr. MATTHEWS. Oh, certainly.

By Mr. BROOKS.

Q. Do you mean 25 cents, or do you mean that is the number of brick to a cubic foot? A. 25 cents. It is 25 cents a foot laid.

By Mr. MATTHEWS.

Q. Will you answer my next question about the 3,259 feet?

Mr. BROOKS. He is trying to figure it out. It is 25 brick to the cubic foot, I think.

Q. Does not the 25 cents there that you have put in, really mean 25 brick to the cubic foot, and haven't you then multiplied by \$14 per thousand, and don't you get your \$1,273 and your \$1,288 that way? A. Very likely that is the way.

Q. Did you make up this schedule and make these calculations yourself? A. No, my boss mason did them.

Q. And that "cents" is probably a mistake, then? A. Yes.

Q. Coming to the purifying house, what do you say is the capacity of the boxes? What is the rated capacity of those boxes? A. Well, I have passed through 800,000, through boxes the same size, in New Haven.

Q. What is the purifying capacity of the works there? A. Today? Well, we have got two sets of 20x24, 20 in. connection.

Q. And what is the capacity of those together? A. Well, rated, what is laid down in the books, would be 2,000,000. As a matter of fact, we can go 2,300,000—2,500,000 to the two sets.

Q. What would be the rated capacity of the purifying plant of the Holyoke Water Power Company? A. I say I had the same size purifiers, and I worked them up to the extent of 800,000 feet in 24 hours.

Q. Comparing them with your own in New Haven, you have given the rated capacity for the latter. Now give the rated capacity for the Holyoke purifying boxes. A. I have never worked mine up to the full extent—our new ones, our present ones; but I should say my present ones would do 3,000,000—force it through.

Q. And that you compare with the 800,000 of this? A. Yes, I had the same size till I removed them. We have passed through 800,000.

Q. You have given the rated capacity of your New Haven boxes at 2,000,000, haven't you? A. Yes.

Q. Now what is the rated capacity of the Holyoke boxes? A. Well, I don't know. I say that I passed 800,000 through boxes of the same size.

Q. What is the maximum output down in New Haven? A. Well, 1,300,000—1,300,000 or 1,400,000.

Q. That is the most you have ever had? A. Yes, sir.

Q. You have taken the price of cast iron pipe about the works at \$26 a ton. How much is that a pound? A. I haven't figured it in that way.

Q. Where did you get your figure of \$26 a ton? A. I say on there, the price of pipe, that year, in New Haven, was \$22.40. I added \$1.50 for the freight, the car freight up there; and I added \$2.00 for distributing round the streets in Holyoke. That is where I got it.

Q. Did you get that price from the Holyoke people? A. No, sir.

Q. Did you ask them? A. Not a word.

Q. You didn't make any inquiries? A. No inquiries of what they paid or what it would cost to distribute it round there. I will go up there and lay the pipe for that price.

Q. This item I called your attention to is not distributed. Do you mean distributed about the works or the streets? A. You are on the works, are you?

Q. Yes. You ought not to add anything for distributing around the city on that item, ought you? A. It costs something to get it from the depot up to the works; they would have to pay for carting it up there.

Q. How much have you allowed for that? A. \$2.00 a ton.

Q. You didn't make any inquiry as to what the Holyoke Water Power Company could buy cast iron pipe for delivered at the works? A. No. They couldn't buy it any cheaper than I could, I am sure of that.

Q. Isn't there a railroad that runs right by the gas works at Holyoke? A. Yes, runs into their yard, I think.

Q. What necessity would they be under for carting, then? A. Well, I don't know as they would in that case.

Q. Then oughtn't you to knock off that \$2.00 a ton for carting? A. How many tons are there figured up for the works?

Q. Let me ask you whether you ought not to knock off that \$2.00 a ton? A. No.

Q. Why not? A. Because I took it on the presumption that they took it at the depot.

Q. Suppose they did not. Suppose they bought delivered at the plant? A. Well, it is a proper charge to knock that off.

Q. Turn over to your street mains. How have you figured

the street mains? How much a pound? A. I put the weight on there.

Q. \$26 a gross ton. A. Yes, sir.

Q. The same price? A. Yes, sir. That, certainly, they would have to cart around where they were going to lay it.

Q. That is over a cent a pound? A. I believe it is \$22.40 at my place, \$22.40 at New Haven, and I allowed \$1.50 for freight, and \$2.00 to cart it round the city to the ditches.

Q. You have got a total then, of \$34,504, in that way? A. Yes.

Q. Now you added \$26,257 for laying a part of the pipe at 18 cents per foot, didn't you? A. Yes.

Q. Where did you get that figure of 18 cents a lineal foot for laying? A. That is the average expense of laying pipe in New Haven.

Q. Did you make any inquiry as to what the average cost in Holyoke was? A. No, sir.

Q. Did you inquire of any paving or sewer contractors what they would do it for? A. No, sir.

Q. What is this allowance of \$6,309 for laying 52,575 feet of wrought iron pipe at 12 cents a foot? A. That is service pipes.

Q. Where did you get your 12 cents for that? A. That is the expense of digging the trenches and putting the pipe together.

Q. Where did you get the 12 cents? A. That is what it costs us down in New Haven.

Q. Did you make any inquiry as to what the price would be in Holyoke? A. No, sir; I took it for granted it would be the same up there.

Q. The discount of 30 per cent. that you take off the meters represents the difference between the list and cash price, I suppose? A. Yes, sir.

Q. All the material that you valued in this schedule is estimated at its full cost to put in new, isn't it? A. That is the cost without any profit or any commissions or any incidentals.

Q. In other words, your whole schedule of structural value is made up on the theory of taking what it would cost to duplicate that plant new today, without allowance for any profits or anything for depreciation? A. Or any incidental expenses, or anybody getting killed or running into the trenches or that like.

Q. Those incidentals, expenses, contractors' profits, engineering, contingencies, etc., you figure up ought to amount to some \$72,000, don't you? A. No.

Q. What would they amount to? That is what I have the total? A. Engineering charges at 5 per cent. on the whole works.

Q. What would that amount to? A. Independent of the land, it would amount to \$13,900. Then incidental charges I figured at 3 per cent., \$8,340. Interest three years, \$44,200 on the works.

Q. Is that all? A. That is all.

Q. What is the total of those? A. \$71,440.

Q. That is about what I said, wasn't it? \$72,000? A. Yes.

Q. Interest for three years. Have you figured that according to the profits that you understand the company is making? A. No, I figured it on 5 per cent., that you wouldn't get any income for the first three years.

Q. That is 5 per cent. on what? A. On the whole outlay of \$128,000.

Q. That is, you took 15 per cent. on that, for interest? A. Yes.

Q. 15 per cent.? A. Yes.

Q. That represented the lapse of time between the beginning of the works and the time they may become profitable? A. Yes; that has been my experience.

Q. How long do you think it would take to actually build the works? A. Oh, I think it could be done in one season, one year.

Q. That is, beginning in the spring and ending up in the autumn before frost came? A. Yes. I know in New Haven we didn't get anything for the first three years, in Brookline for six, and Newport until after six.

Q. But the actual time devoted to construction would be—  
A. About a year.

Q. One season? A. Yes.

Q. About 8 or 9 months? A. Yes. April to December.

Q. You have got a total of \$71,440, which you might have added into this estimate, but did not? A. I might.

Q. And on the other hand, you made no allowance for depreciation? A. None at all.

Q. And you intended, I suppose, that one fact should offset the other? A. No, I didn't intend any such thing.

Q. What did you intend? A. Intended just what the figures show.

Q. Which figures? A. The \$71,000.

Q. When did you first make those figures, \$71,440? A. Oh, they have always been in my mind.

Q. When did you first make those figures of \$71,440? A. Oh, a month ago.

Q. Why didn't you put them in this schedule? A. I didn't know as they would be allowed.

Q. You have made up this schedule to represent your opinion of the fair value of that plant? A. What I could go up and duplicate those works for, without one cent of profit. I will go up and lay the street mains, and I want 15 per cent. on to my bid there, on to my estimate.

Q. You want not only what there is here but 15 per cent. more? A. 15 per cent. more. That is actual cost; I will take the contract at 15 per cent. additional.

Q. Where are the profits now? A. The profits are in the man who makes the pipe, and the railroad which carries it up there, and the vessel that brings it to the dock at New Haven. There are no profits there, in laying that. This is the actual cost; no profits in that pipe business at all.

Q. There is nothing in the \$71,440 for contractors' profits at all? A. No, sir.

Q. You have prepared a schedule here showing the structural value of this property at \$328,638.17, haven't you? A. Yes, sir.

Q. When was that schedule prepared? A. January or February.

Q. Now you want to add to it \$71,440? A. Yes.

Q. This was made in January? A. This was made in January.

Q. And you didn't think of making this addition till then? A. A month. It was always in my mind. That was a debatable question, whether it would be a proper charge. That was in my mind. I always knew, in taking my pipe business there, that it was down to rock bottom prices, just what it costs in New



Haven, without a cent of profit, and don't actually represent the cost.

Q. The engineering expenses and the incidentals of construction are matters which you always have to spend money for, aren't they, in building gas works? A. Well, not in my case, because we don't hire anybody. I attend to that myself. But if you are going to build new works, of course it is a proper charge.

Q. Why shouldn't you put that into your schedule originally, then? A. I didn't know as they would be admitted, or a proper charge.

Q. What were you asked to do about these works? A. I was asked to estimate, to make an estimate of what they could be duplicated for, or what the cost was, the structural value.

Q. The structural value? A. The structural value.

Q. And you furnished this schedule in response to that request? A. Yes, sir.

Q. Showing \$328,638.17? A. Yes; that is without any profit.

Q. That is what you furnished? A. I furnished that.

Q. In reply to the request? A. Yes.

Q. And you headed it, "Valuation of the Holyoke Gas Works?" A. Yes, sir.

Q. If the Holyoke Water Power Company was going to duplicate the plant or put a new plant in there, it would have to employ an engineer, wouldn't it? A. I don't know. The present Holyoke Company?

Q. Yes. A. No, sir.

Q. Isn't an engineering charge a fair and necessary one to take into account? A. Yes, but they keep one, I suppose, the year round. If they are going to build anything—doing all this work—I make no charge out of my salary on extensions of our work.

Q. Yes; but if a new company started in? A. A new company, of course, would have to pay for it.

Q. Why shouldn't it have been charged in, then, in the first place?

Mr. BROOKS. He has told you over and over again.

The WITNESS. The only question is, as I understand, whether it is a proper charge or not. If it is not a proper charge, have it struck off.

Q. Did you think it was a proper charge? A. I certainly think it is.

Q. Why didn't you put it in? A. I didn't know but it would be objected to.

Q. Do you mean to say that you didn't leave that out because you had not allowed anything for depreciation? A. Depreciation never entered my head; I never heard of it till I came up here.

Q. You have heard all your colleagues in this case testify about it, haven't you? A. No. I heard Mr. Nettleton, but I don't accept it.

Q. You don't accept it? A. No.

Q. You don't believe in it? A. No, not in the way I carry on works.

Q. You think Mr. Nettleton is all wrong in his theory that something should be allowed for depreciation? A. The way I carry on my works, there is no—I keep my works up in first-class condition, and if there is any of the apparatus that becomes obsolete or outgrown it goes into scrapping, and if there is any improvement made in apparatus, mine goes out. I have changed my water gas plant twice and I don't know but I am going to change it again.

Q. To what would the cost of the first plant go? A. Oh, I don't know what they do with it.

Q. Does it go to operating expenses? A. I don't keep the books.

Q. It goes to capital, doesn't it? A. I don't know; I don't care, so long as they furnish me with the apparatus I want.

Q. You don't know what the cost of new apparatus is charged to? A. No, I don't.

Q. You don't know whether it goes to operating expense or capital? A. If they asked me where it should go, if they consulted me about the book-keeping, I should say it would go to operating expense.

Q. Do you know where they put it? A. No, I don't; I don't keep the books.

Q. What would you say is the average normal life of gas machinery? A. I never used any long enough. We outgrow it and it becomes obsolete. I never wore out anything in my life.

Q. What would you say the average normal life of gas machinery is, including the possibility of its becoming obsolete?

A. I haven't had any experience in it. I never kept anything long enough to wear it out. I have always been in growing communities where the sale was always increased, and I had to throw it out, we had outgrown it. And then if I hear of anything which experience has demonstrated is better than what I have got, that comes into our works and the old apparatus goes out.

Q. Taking those very facts into account, the possibility that machinery may become obsolete, the possibility that the business will grow so fast that you have got to throw it away and get larger machinery, what do you say is the average normal life of gas machinery? A. I have made no figures on it.

Q. You have had a good deal of experience in that sort of thing? A. Yes, but I made no figures on it. Whatever it is, if they consulted me it would come out of running expenses.

Q. All the material in the Brookline gas works disappeared in 17 years, didn't it? A. Yes.

Q. The whole of it? A. Yes.

Q. And all the gas machinery and the plant at the New Haven works has disappeared once, at least, since you became connected with it? A. The capital when I went to Brookline was \$40,000; I left it \$66,000.

Q. Capital? A. Capital. And the capital at New Haven when I went there was \$800,000, and now it is \$1,000,000.

Q. Just \$1,000,000? A. Just \$1,000,000.

Q. How many years have you been in New Haven? A. 24.

Q. 24 years? A. Yes.

Q. During those 24 years you have replaced that whole structure, haven't you, except the walls? A. Yes.

Q. The whole gas plant except the walls? A. Yes.

Q. And what has been the increase in the capacity of the works in those 24 years? A. Taking the water gas plant, why, we have doubled it—if we put in our water gas plant.

Q. Don't you count that in? A. Don't count that in.

Q. It has doubled in 24 years? A. Yes, the water gas plant has.

Q. You have only added \$200,000, 25 per cent., to your capital during that period? A. Yes.

Q. What has all the cost of new apparatus that you have put in, for the purpose of duplicating the apparatus that was there when you came, been charged to? Operating expense? A. I don't know.

Q. You think it ought to be charged to operating expenses?

A. That is what I would charge it to, if you asked my opinion about it.

Q. In regard to the schedule of local prices which was furnished you by the employees of the Holyoke Water Power Company, do you understand that the prices that are contained in that schedule were prices for the material delivered at the place where they were to be used or not? A. If you say so, it was.

Q. What did you understand? That is what I want to get at. A. I didn't understand anything about it.

Q. You must have understood that there was carting to be added to those prices, didn't you, because you have added carting, haven't you? A. Well, here is red brick, \$6.50. I don't expect I was going to buy that in the yard.

Q. Here is 12 in. cast iron pipe at 64 cents. What did you figure that? A. Oh, that is the prices in 1896.

Q. You took 70 cents, didn't you? A. \$26 a ton delivered.

Q. Then you added 6 cents? A. I didn't pay any attention to that. I paid no attention to that schedule at all.

Q. Then you got a schedule of local prices furnished you by the Holyoke Water Power Company, and paid no attention to it? A. I looked it over, and what I could get cheaper or dearer—that is my estimate of what I would go up and duplicate the works for without any regard to their prices.

Q. When you could get higher prices you took it? A. No; when I could get a lower one; I paid no attention to those prices. \$4.50 per day for mason. We get them cheaper than that down in our town.

Q. You found they could get 12 in. cast iron pipe delivered for 64 cents, and you proceeded to assume 70 cents, didn't you? A. If it figures up that.

Mr. MATTHEWS. I don't want any mistake about it.

Mr. BROOKS. Have you got the schedule?

The WITNESS. Yes, but it isn't figured up by the pound.

Q. What is that \$26 a ton? A. It is a cent a pound in my town, in New Haven, and the expense of getting it up there.

Q. It is \$26 for 2,240 pounds, isn't it? A. Yes. It might not have been so heavy as what I figured on. They didn't state the weight of their pipe.

Q. We can figure that out ourselves; we won't use time on it now. The substance of your testimony is that you didn't pay any attention to these figures furnished you by the company? A. I figured it up on the basis of what I could do it for in New Haven. I took their prices on brick.

Q. But you didn't for iron pipe? A. No.

Q. Why not? A. Well, I didn't think of that; I presume that is lighter pipe than I figured on. There is my schedule for my weights. They didn't state the weight of the pipe.

Q. What did you figure for weight? A. There it is on my schedule.

Q. Ordinary standard gas pipe weights? A. What I am buying in New Haven, I am figuring on.

Q. Is that what is known as standard? A. No two gas panies, hardly, have the same weight.

Q. Do not? A. No; some of them have heavier.

Q. Did you hear one witness for the company testify about standard weight of gas pipe? A. I didn't hear it.

Q. You don't think there is any such thing? A. Why, yes, if you don't say anything to the foundry man—or, in fact, when you give your order you state the weight you want per foot.

Q. What information did you rely on when you assumed a certain weight per foot for the Holyoke Company? A. What I bought myself.

Q. Did you ask any information from the company on the subject? A. Not a word.

Q. You did not? A. No, not the Holyoke Company.

Q. Wouldn't it have been an easy thing to inquire of them what their weights were? A. It didn't occur to me.

Q. Did not? A. No.

Q. Did you buy of R. D. Wood & Co.? A. Buy where I can buy cheapest.

Q. Do you buy of them? A. I have bought of them. Last year we bought of the Warren Foundry Company.

Mr. MATTHEWS. I understand that the schedule of local prices furnished by the Holyoke Water Power Company to this

witness is the same as that furnished by the company to Mr. Nettleton.

The WITNESS. My schedule here is 60 pounds to the foot, 12 in. pipe.

Q. 60? A. Yes, that is what I use.

Q. Is this your original schedule? A. That is the original.

Mr. BROOKS. Are you through?

Mr. MATTHEWS. Yes, unless there is something I have forgotten: I don't think there is.

#### RE-DIRECT.

By Mr. BROOKS.

Q. Mr. Sherman, I want to ask you to turn to the third page of your schedule, under Tar Wells, well No. 2; I don't quite see how you get those figures; I thought perhaps you might be able to tell me; just look at that. A. I see. Evidently,—it corresponds, this is the original one, I got them copied; it corresponds with my paper here,—evidently there is an error.

Q. Will you be kind enough to later on correct that? A. Yes.

Q. And send it to me? A. I will.

Mr. BROOKS. And I presume Mr. Matthews will be willing that shall go in?

Mr. MATTHEWS. Certainly.

Q. Running over that there is another one. Take your first page of your schedule, Flag Floor in Retort House. You have got it \$625. If that is 3,500 square feet, and it is at 25 cents, why, it would be \$875. What does that 25 mean, the number of brick in a cubical foot, or is it cents? Do you see what I mean? A. \$625?

Q. Yes. A. 3,500 feet.

Q. If that was 2500 feet it would be \$625, but I see it is 3500 according to that. See? It is stone floor, is it not? A. Yes.

Q. Well, that is it. Will you look at that and tell me whether that 3500 ought not to be 2500, quantity of flag floor? That would make it just \$625.

The CHAIRMAN. Is it worth while to take much time on it?

Mr. BROOKS. I thought very likely he could do it.

Mr. MATTHEWS. You can have him correct it at his leisure.

Q. Mr. Sherman, be kind enough later on to run over these quantities and the prices and amounts as they are carried out, and any mistakes be kind enough to correct. A. I will, and send it to you.

Q. And send it to me? A. Yes, sir.

Q. Now, I want to go back with you. You said that you appraised for Addicks on the Bay State works? A. Yes, sir.

Q. Was that one of the concerns that were capitalized on a 4 per cent. basis? A. Yes, sir.

Q. How many millions? A. Well, he had five millions of stock on his works and two millions of bonds, of 7 per cent. bonds. He was allowed—they capitalized the stock of the works on a 4 per cent. basis on the earnings, which he showed a commission of the court.

Q. That was capitalized by the——

Mr. MATTHEWS. Wait one moment; what is he testifying to, what the court did? I object to that.

Mr. BROOKS. I don't know whether the court did it or not. A. Well——

Mr. MATTHEWS. Excuse me one moment. I move, your Honors, that that be stricken out.

Mr. COTTER. If it is objected to, we will exclude that.

Mr. BROOKS. This was opened, I claim, by the cross examination, may it please your Honors.

Mr. MATTHEWS. I didn't say a word about it.

Mr. BROOKS. You asked him with reference to some Bay State works, about his examination.

Mr. MATTHEWS. Yes, and he stated he did not have anything to do with it.

The WITNESS. Afterwards.

Mr. COTTER. Was there any court proceeding?

Mr. BROOKS. I don't think there was any court proceeding.

Mr. MATTHEWS. I can explain the thing, because I tried it.

Mr. BROOKS. Was it a court proceeding, or gas commission?

Mr. MATTHEWS. No, sir; it was not either. The Bay State Gas litigation arose in the first place before the Massachusetts General Court in 1893. I tried the case myself for the city of Boston against the company, and that was the occasion for which this witness valued this plant.

Mr. COTTER. Where was that?

Mr. MATTHEWS. Before the legislature upon charges for the forfeiture of their charter, and it resulted in a bill. There was no finding by any court at that time of the value of the plant. That was the occasion and the only occasion upon which this witness ever valued the property of the Bay State Gas Company, if I understood him correctly. He valued it, but he was not put upon the witness stand by the company, his client. And then, subsequent to the passage of that act, there was a judicial valuation by the Commission of the plant itself. I asked the witness whether he made the examination for the purposes of that trial or testified at the trial, and he said no in reply to both questions. I dropped it right there.

Mr. COTTER. We wanted that understood, whether it was a hearing before the court.

Mr. BROOKS. I don't understand that there can be any hearing before a court that can capitalize this plant. Anyway, we will show it if we are allowed to.

Q. Mr. Sherman, assuming that a plant is kept in first-class condition in all its various parts or ramifications from year to year, should there, in your opinion, be any sum set aside as a sinking fund for depreciation? A. That has not been my custom, or any company I have ever worked for. I should say no.

Q. Is there anything outgrown in the Holyoke plant? A. I didn't see anything.

Q. And another word that was used I want to cover. Is there anything "obsolete" in their plant? A. No, sir; they are up-to-date works so far as I observed them.

Q. The Brookline Company and the New Haven Company were early in the gas field? A. Yes, sir.

Q. And when was it that you were compelled to change more frequently, in the early days of the gas business or in those later days? A. Oh, in these later days. The business has in-



creased very much faster in the last ten years than it did in the early times.

Q. That is, you change because of the increase of the business? A. Yes, sir, and to get the improved apparatus. We calculate to carry on our business on commercial principles.

Q. In the early days, taking the experience of the Brookline Company and the early experience of the New Haven Company, did they have the improved mechanisms of the present time? A. They were not known. They could not have what there was not on the market. They had up-to-date apparatus at that time.

Q. In the valuation of this plant, etc., do you take into account the future of it? A. I have not.

Q. And do prices for material and labor differ essentially between your section of the country and Western Massachusetts? A. No, sir.

Q. You have spoken of brick; you took the Holyoke prices for bricks? A. Yes, sir, but your bricks are smaller than our New Haven brick.

Q. Smaller. And with reference to prices, how do they compare, per thousand, I mean? A. I think it was a dollar difference, but your bricks don't lay so many to the foot. Your bricks are smaller than ours.

Q. That is, it would make it cheaper by a dollar per thousand? A. Nominally your bricks are cheaper, but when you come to lay them, they would not be any cheaper, because it takes more per cubic foot.

Q. How deep do you lay your pipes in New Haven? A. Three feet and a half,—three feet—

Q. I mean from the surface of the pipe, top surface of the pipe? A. Three feet, top of the pipe.

Q. Three feet? A. Yes, sir.

Q. Do you know how deep they were laid in Holyoke? A. No, sir. Somebody told me they were laid three and one-half.

Q. On what basis did you figure, three or three and a half? A. I figured three feet.

Q. Three feet? A. Yes, sir.

Q. So that if they were laid three feet and a half or four feet from the surface, your estimate should be increased? A. Yes, sir; should be increased.

Mr. BROOKS. I don't know of anything more.

The CHAIRMAN. Do you want to ask him any questions, Mr. Matthews? Are you ready to go on?

### RE-CROSS EXAMINATION.

By Mr. MATTHEWS.

Q. What is the present practice in respect to laying small-sized mains, three-inch or under? A. We don't lay any.

Q. What is the smallest size that you lay? A. Four.

Q. Four? A. Have not laid any for 25 years under that.

Q. Haven't laid any mains less than four inches for 25 years? A. No, sir.

Q. Is that the approved, correct practice in gas companies?

A. I don't know; it is in ours.

Q. You think it is the proper practice, don't you? A. It is down at our place.

Q. Well, you think it is the proper practice? A. Oh, yes, I approve of it.

Q. Now, a distribution system, if it consisted of nothing less than four-inch mains, would be more valuable than one which consisted in large number of three-inch, two and one-half, two and one and one-half? A. It costs more; it might not do any better work; it might not be worth any more for the business that was being done with it. It costs more.

Q. Why is it that you don't lay mains less than four inches in diameter? A. Because we have more work for them to do. All the companies started out on a three-inch main, and they were laid in our place in the center of the street, and when they came to sewer the city, we had miles of three-inch pipe to take up and to lay on one side of the street, and while we have re-laid that pipe as far as it would go on places where there would not be very great demand for it, we have used it all up, but we have always replaced it with four-inch.

Q. Why do you prefer four-inch to three-inch? A. It will deliver more gas, and with this water gas we are making we need larger pipes.

Q. The specific gravity of water gas is a little more than coal gas? A. Yes, sir.

Q. So that that necessitates a larger main for a given quantity of output? That is so, is it not? A. Yes.

## RE-DIRECT EXAMINATION.

By Mr. BROOKS.

Q. Well, if you have a gas plant that is adapted to all the calls that are made upon it, and it has small pipe, would a large pipe do any better service? A. No, sir.

Q. Well, now, your population in New Haven is how many? A. Well, about a hundred thousand.

Q. How much? A. One hundred thousand.

Q. One hundred thousand? A. Yes, sir.

Q. You understood the population of Holyoke is about forty to forty-four? A. Yes, sir.

Q. And take Holyoke with its population, is there any objection to the small main? A. No objection to them if the people are being supplied and they do the work. I was asked recently by my directors if I didn't want to dig up some three-inch pipe. I told them no, the people were being supplied, and there was no complaint made. It was well enough if there was not but an inch pipe there.

Q. What do you say about using a small pipe with large pipe as feeders? A. That is what we are doing; we are laying 24-inch pipe for feeders.

Mr. BROOKS. That is all. Do you want to ask him anything more?

Mr. MATTHEWS. No.

Mr. BROOKS. Mr. Matthews and I have agreed, subject to the consent of the Commission, that we will call this a day.

The CHAIRMAN. I would like very well to have it called a day. I shall be all right for tomorrow morning.

Mr. COTTER. We will adjourn until the usual time tomorrow morning, half-past nine.

(Adjourned to Friday, April 21, 1899, at 9.30.)

## TWELFTH HEARING.

Boston, Friday, April 21, 1899.

The Commission met at 9.30 A. M.

SAMUEL J. FOWLER, sworn.

By Mr. BROOKS.

Q. Your name is Samuel J. Fowler? A. Yes, sir.

Q. And you reside where? A. In Springfield.

Q. What is your profession, or business? A. Manager of the Springfield Gas Light Company.

Q. And how long have you been connected with gas works? A. Officially for eleven years.

Q. Unofficially? A. Unofficially something over 30. That is, I will say, that would make 19. Eleven officially and 19 unofficially.

Q. And with what gas companies have you been connected? A. With the Westfield Gas Light Company and the Springfield Gas Light Company.

Q. Were you also the manager of the Westfield Gas Light Company? A. Yes, sir.

Q. And now the manager of the Springfield Gas Light Company? A. Yes, sir.

Q. And whether or not you are acquainted with the value of the various mechanisms that go to make up a gas plant? A. I am.

Q. And whether or not you have been called upon by the Holyoke Water Power Company to form and express an opinion of the fair market value of this gas plant located in the city of Holyoke? A. I have been.

Q. Have you made your estimates and come to your conclusion as to what the fair market value of the plant is? A. I have.

Mr. BROOKS. I will put in the detailed valuation at the present time.

**SCHEDULE**  
OF  
**GAS PLANT OF HOLYOKE WATER POWER COMPANY.**

*By Samuel J. Fowler.*

No. 1.	OFFICE.	
81 cu. yds. of excavating (30c.) . . . . .		\$24.30
71½ cu. yds. back filling (25c.) . . . . .		17.87
166 sq. ft. flaggers (35c.) . . . . .		58.10
35,500 brick (\$10) . . . . .		395.00
Granite and brown stone sills and caps . . . . .		61.00
2 slate hearths . . . . .		6.00
2,900 ft. spruce timber (25c.) . . . . .		72.50
600 ft. floor lining (25c.) . . . . .		15.00
750 ft. Southern pine flooring (45c.) . . . . .		33.75
1,000 ft. roof boards (30c.) . . . . .		30.00
3,660 ft. whitewood sheathing (5c.) . . . . .		183.00
7 thresholds (30c.) . . . . .		2.10
150 ft. base (10c.) . . . . .		15.00
118 ft. chair band (5c.) . . . . .		5.90
118 ft. picture moulding (3c.) . . . . .		3.54
2 outside doors and frames (\$16) . . . . .		32.00
7 inside doors and frames (\$12) . . . . .		84.00
8 windows (\$12) . . . . .		96.00
8 sets inside blinds (\$10) . . . . .		80.00
4 ventilators (\$3) . . . . .		12.00
Plumbing . . . . .		110.00
2 fireplaces and mantels . . . . .		120.00
2 radiators and piping and gas fixtures . . . . .		40.00
Painting . . . . .		100.00
8½ squares of slating . . . . .		85.00
Cornice moulding, etc. . . . .		25.00
Drain pipe . . . . .		25.00
		\$1,732.06

No. 2.	GASOMETER No. 1 (BUILDING).	
3,400 cu. yds. excavation (30c.) . . . . .		\$1,020.00
1,400 cu. yds. back filling (25c.) . . . . .		350.00
498,000 brick (\$10) . . . . .		4,960.00
500 ft. stone (35c.) . . . . .		175.00
13,800 ft. hard pine timber (35c.) . . . . .		483.00
8 windows (\$8) . . . . .		64.00
1 door . . . . .		12.00

6,000 ft. roof boards (30c.) . . . . .	\$180.00	
50 sqs. slating (\$10) . . . . .	500.00	
Cupola . . . . .	200.00	\$7,964.00

**No. 3. GASOMETER No. 1 (CONTENTS).**

Gasometer 60 ft. diameter, 20 ft. deep.

Area . . . . . 2,827.4 ft.

Pressure . . . . . 14.3 lbs.

394836

84822

4033182

at .06 per lb.

\$2,419.9192

249.00

30.00 cast iron.

334.00 valves and connections.

\$3,033.00

4,150 lbs. iron

at .06

\$249.00

**No. 4. GASOMETER No. 2 (BUILDING).**

4,805 cu. yds. excavation (30c.) . . . . . \$1,441.50

2,292 cu. yds. back filling (25c.) . . . . . 573.00

665,000 brick (\$10) . . . . . 6,650.00

277 sq. ft. 6-in. brown stone (75c.) . . . . . 201.75

Steps, sills and caps . . . . . 60.00

18,300 ft. hard pine timber (35c.) . . . . . 640.50

8,937 ft. pine roof boards (30c.) . . . . . 268.11

1 outside door . . . . . 12.00

23 windows (\$8) . . . . . 184.00

Cupola . . . . . 200.00

72 squares slate (\$10) . . . . . 720.00

10,950 86

**No. 5. GASOMETER No. 2 (CONTENTS).**

Iron in holder . . . . . 67,089.78

Wrought iron . . . . . 2,000

1,707

10,281

81,078 @ 6 cts. . . . .

4,864.63

Cast iron . . . . . 55,831

12,000

67,831 @ 3 cts. . . . .

1,834 93

\$6,699.61

Pipes and valves . . . . . 300.00

6,999.00

**No. 6. GASOMETER No. 3 (BUILDING).**

8,000 cu. yds. excavation (30c.) . . . . .	\$2,400.00	
4,382 cu. yds. back filling (25c.) . . . . .	1,095.50	
1,214 ft. flaggers (35c.) . . . . .	424.90	
742,200 brick, in cement (11c.) . . . . .	8,164.20	
399,744 brick, in lime (9c.) . . . . .	3,597.70	
Stone . . . . .	455.00	
1,620 ft. Southern pine (35c.) . . . . .	56.70	
20,000 ft. native pine (30c.) . . . . .	600.00	
16,000 ft. pine roof boards (30c.) . . . . .	480.00	
4,800 ft. 3-in. chestnut plank (35c.) . . . . .	168.00	
114 sqs. slate (\$10) . . . . .	1,140.00	
Window screens . . . . .	135.50	
17 windows (\$8) . . . . .	136.00	
18 windows (\$6) . . . . .	108.00	
2 doors (\$12) . . . . .	24.00	
3,064 ft. post and plank in frame (35c.) . . . . .	107.24	
4,410 ft. post and plank in frame (35c.) . . . . .	154.35	
Painting . . . . .	100.00	\$19,347.09

**No. 7. GASOMETER No. 3 (CONTENTS).**

Holder, 73,300 at 6c. . . . .	\$4,398.00	
Wrought iron . . . . .	17,732	
	<u>9,052</u>	
	26,784 @ 6c. . . . .	1,607.04
Railroad iron . . . . .	4,320 " 1½c. . . . .	64.80
Cast iron . . . . .	151,500 " 3c. . . . .	4,545.00
Pulleys . . . . .	2,553 " 5c. . . . .	127.65
		<u>\$10,742.49</u>
Valves and pipes . . . . .		360.00
		<u>\$11,102.00</u>

**No. 8. EXHAUSTER ROOM.**

14 cu. yds. excavation (30c.) . . . . .	\$4.20	
182 cu. yds. back filling (25c.) . . . . .	45.50	
68,000 brick (\$10) . . . . .	680.00	
Stone . . . . .	24.00	
3,000 ft. spruce timber (26c.) . . . . .	78.00	
1,100 ft. plank (25c.) . . . . .	27.50	
650 ft. sheathing (4c.) . . . . .	26.00	
800 ft. roof boards (3c.) . . . . .	24.00	
7 squares slate (\$10) . . . . .	70.00	
1 outside door . . . . .	12.00	
1 inside door . . . . .	10.00	
5 windows (\$8) . . . . .	40.00	
Painting . . . . .	30.00	1,071.20

**No. 9. EXHAUSTER ROOM (CONTENTS).**

2 exhausters . . . . .	\$1,600.00		
Engines and connections . . . . .	160.00		
Water wheel . . . . .	300.00		
6 12-in. valves . . . . .	360.00		
14 12-in flanged L's . . . . .	3,290 lbs.		
2 crosses . . . . .	880		
Tee . . . . .	355		
44 ft. flanged pipe . . . . .	4,400	450.00	
	<u>8,925 lbs.</u>		
Dynamo . . . . .	\$100.00		
Wiring. . . . .	20.00		
Shafting and belting . . . . .	130.00	250.00	\$3,120.00

**No. 10. CONDENSER ROOM.**

12.43 cu. yds. excavation (30c.) . . . . .	\$3.80		
326 cu. yds. back filling (25c.) . . . . .	81.50		
8,000 brick (\$10) . . . . .	80.00		
Stone . . . . .	36.00		
3,666 ft. spruce timber (26c.) . . . . .	95.32		
1,600 ft. plank (25c.) . . . . .	40.00		
1,400 ft. roof boards (30c) . . . . .	42.00		
11½ squares slate (\$10) . . . . .	115.00		
1 door . . . . .	12.00		
4 window plank frames (\$6) . . . . .	24.00		
Painting . . . . .	20.00		549.62

**No. 11. CONDENSER ROOM (CONTENTS).**

Condenser . . . . .	\$1,800.00		
Condenser and tar extractor . . . . .	1,000.00		
Standard . . . . .	2,250.00		
Connections . . . . .	651.00		
Valves (8) . . . . .	540.00		
Valve (3-way) . . . . .	125.00		
Deane pump . . . . .	75.00		
Piping . . . . .	150.00		
Shafting . . . . .	25.00		
Tar drains . . . . .	15.00		6,631.00

**No. 12. WASH ROOM.**

5 cu. yds. excavation (30c.) . . . . .	\$1.50		
125½ cu. yds. back filling (25c.) . . . . .	31.36		
13,500 brick (\$10 per M) . . . . .	135.00		
Stone . . . . .	24.00		
1,220 ft. timber (26c.) . . . . .	31.72		



700 ft. plank (25c.) . . . . .	\$17.50	
896 ft. sheathing (5c.) . . . . .	44.80	
550 ft. roof boards (3c.) . . . . .	16.50	
1 door . . . . .	12.00	
2 windows (\$6) . . . . .	12.00	
4½ squares slating (\$10) . . . . .	45.00	
Painting . . . . .	15.00	
Plumbing . . . . .	200.00	\$586.40

**No. 13. PURIFYING ROOM.**

44½ cu. yds. excavation (30c.) . . . . .	\$13.35	
958 cu. yds. back filling (30c.) . . . . .	287.40	
160,000 brick (\$10 per M) . . . . .	1,600.00	
16 ft. flaggers (35c.) . . . . .	5.60	
Stone . . . . .	124.50	
7,859 ft. timbers (26c.) . . . . .	204.33	
,850 ft. plank (25c.) . . . . .	71.25	
3,000 ft. sheathing (35c.) . . . . .	105.00	
4,200 ft. roof boards (30c.) . . . . .	126.00	
34½ squares slate (\$10) . . . . .	345.00	
2 doors (\$12) . . . . .	24.00	
15 windows (\$6) . . . . .	90.00	2,996.43

**No. 14. PURIFYING ROOM (CONTENTS).**

4 boxes, 20 x 15, with connections and centre valve . . .	\$8,000.00	
3 L's . . . . .	25.00	
Pipes . . . . .	90.00	8,115.00

**No. 15. PASSAGEWAY.**

11 cu. yds. excavation (30c.) . . . . .	\$3.30	
7½ cu. yds. back filling (25c.) . . . . .	1.88	
13,440 brick (\$10 per M) . . . . .	134.40	
Stone . . . . .	30.00	
400 ft. timber (26c.) . . . . .	10.00	
260 ft. plank (25c.) . . . . .	6.30	
2 doors (\$12) . . . . .	24.00	
2 windows (\$6) . . . . .	12.00	
170 ft. gravel (5c.) . . . . .	8.50	
260 ft. plank (25c.) . . . . .	6.30	
Painting . . . . .	8.00	244.68

**No. 16. BLACKSMITH SHOP.**

16 cu. yds. excavation (30c.) . . . . .	\$4.80	
10½ cu. yds. back filling . . . . .	2.63	
17,280 brick (\$10) . . . . .	172.80	
Stone . . . . .	27.00	

500 ft. timber (26c.) . . . . .	\$13.00	
600 ft. roof boards (30c.) . . . . .	18.00	
1 door . . . . .	12.00	
4 windows (\$6) . . . . .	24.00	
480 ft. gravel roof (5c.) . . . . .	24.00	
1 bench . . . . .	10.00	
144 ft. flangers (35c.) . . . . .	50.40	
850 ft. plank (25c.) . . . . .	21.25	\$379.88

## No. 17.

## HORSE SHED.

Horse Shed . . . . .	50.00
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## No. 18.

## PIPE SHOP.

130½ cu. yds. excavation (30c.) . . . . .	\$39.15	
20 cu. yds. back filling (25c.) . . . . .	5.00	
231 sq. ft. flangers (35c.) . . . . .	80.85	
55,500 brick (\$10) . . . . .	555.00	
Stone . . . . .	98.00	
2,800 ft. timber (26c.) . . . . .	72.80	
1,050 ft. roof boards (30c.) . . . . .	31.50	
1,200 ft. plank (25c.) . . . . .	30.00	
2 doors (\$12) . . . . .	24.00	
8 windows (\$6) . . . . .	48.00	
8 ½ sqs. slating (\$10) . . . . .	85.00	
Painting . . . . .	15.00	1,084.30

## No. 19.

## STATION AND HOUSE METER ROOM.

25½ cu. yds. excavation (30c.) . . . . .	\$7.65	
310 cu. yds. back filling (25c.) . . . . .	77.50	
91,000 brick (\$10) . . . . .	910.00	
Stone . . . . .	66.00	
3,790 ft. timber (26c.) . . . . .	98.54	
1,500 ft. roof plank (30c.) . . . . .	45.00	
1,000 ft. sheathing (4c.) . . . . .	40.00	
1 door . . . . .	12.00	
6 windows (\$6) . . . . .	36.00	
12 sqs. slating (\$10) . . . . .	120.00	1,412.69

## No. 20.

## LIME ROOM.

26 cubic yds. excavating (30c.) . . . . .	\$7.80	
291 cu. yds. back filling (25c.) . . . . .	72.75	
96,000 brick (\$10) . . . . .	960.00	
Stone . . . . .	53.00	
3,800 ft. timber (26c.) . . . . .	98.80	
1,600 ft. plank (25c.) . . . . .	40.00	
1,400 ft. roof boards (30c.) . . . . .	42.00	

3 doors (\$12) . . . . .	\$36.00	
5 windows (\$6) . . . . .	30.00	
11 squares slating (\$10) . . . . .	110.00	\$1,450.35

**No. 21. VALVE AND WATER GAS ROOM.**

17½ cu. yds. excavation (30c.) . . . . .	\$5.25	
142 cu. yds. back filling (25c.) . . . . .	35.50	
92,618 brick (\$10) . . . . .	926.18	
87½ ft. flaggers (35c.) . . . . .	30.62	
Stone . . . . .	62.00	
312 ft. spruce timber (26c.) . . . . .	8.11	
1,816 ft. Southern pine timber (35c.) . . . . .	63.56	
5,000 ft. plank (25c.) . . . . .	125.00	
1,050 ft. maple flooring (5c.) . . . . .	52.50	
2 doors (\$12) . . . . .	24.00	
9 windows (\$6) . . . . .	54.00	
134 ft. sheathing (5c.) . . . . .	6.70	
588 squares slate . . . . .	58.80	1,462.22

**No. 22. VALVE AND WATER GAS METER ROOM (CONTENTS).**

1 meter . . . . .	\$1,600.00	
Connections and labor . . . . .	885.00	2,485.00

**No. 23. STATION METER.**

Meter . . . . .	\$1,600.00	
Connections and pipes:		
3 12-inch valves, \$32 . . . . .	96.00	
2 12-inch L's . . . . .	14.00	
2 12-inch T's . . . . .	22.00	
20 ft. 12-inch pipe . . . . .	50.00	
Labor . . . . .	25.00	1,807.00

**No. 24. GOVERNOR.**

Governor . . . . .	260.00
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**No. 25. OFFICE FURNITURE, ETC.**

Office furniture, books and maps . . . . .	\$551.00
Telemeter . . . . .	600.00
Horse, etc. . . . .	250.00
B. room . . . . .	50.00
Hoisting engine . . . . .	100.00
Old boilers . . . . .	20.00
Dumping coal wagon . . . . .	20.00
Dumping coal buckets . . . . .	20.00
5 door roll hangers . . . . .	5.00
73 lbs. pipe hangers . . . . .	5.00

Tar burner . . . . .	\$10.00	
28 lbs. chain . . . . .	2.00	
7,140 lbs. floor plates . . . . .	107.00	
Water gas telemeter . . . . .	300.00	\$2,040.00

**No. 26.****CONCRETE IN YARD.**

720 yds. at 70c. . . . .	500.00
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**No. 27.****RETORT HOUSE.**

725 cu. yds. excavation (30c.) . . . . .	\$217.50	
105 cu. yds. puddling (50c.) . . . . .	52.50	
153½ cu. yds. back filling (25c.) . . . . .	38.38	
1,142 flaggers . . . . .	399.70	
200,000 brick (\$10) . . . . .	2,000.00	
Stone . . . . .	167.00	
5 sliding doors (\$25) . . . . .	125.00	
26 windows (\$10) . . . . .	260.00	
53 sqs. slate (\$10) . . . . .	530.00	
Painting . . . . .	25.00	3,815.08

**WATER GAS PLANT ROOM.**

155 cu. yds. excavation (30c.) . . . . .	\$46.50	
100 cu. yds. puddling (50c.) . . . . .	50.00	
91 cu. yds. back filling (25c.) . . . . .	22.75	
499 ft. flaggers (35c.) . . . . .	171.15	
20 yds. back filling (\$2) . . . . .	40.00	
120,000 brick (\$10) . . . . .	1,200.00	
Stone . . . . .	173.00	
314 yds. brick paving (70c.) . . . . .	219.80	
2 doors (\$8) . . . . .	16.00	
2 doors (\$25) . . . . .	50.00	
9 windows (\$8) . . . . .	232.00	
39 sqs. slate (\$10) . . . . .	390.00	
Painting . . . . .	30.00	2,641.20

**ENGINE ROOM.**

74½ cu. yds. excavation (30c.) . . . . .	\$22.35	
32½ cu. yds. puddling (50c.) . . . . .	16.25	
31½ cu. yds. back filling (25c.) . . . . .	7.88	
172 sq. ft. flaggers (35c.) . . . . .	60.20	
32,000 brick (\$10) . . . . .	320.00	
Stone . . . . .	83.00	
57½ yds. paving (70c.) . . . . .	40.25	
900 ft. spruce timber . . . . .	23.40	
825 ft. roof boards (3c.) . . . . .	24.75	
1 door . . . . .	12.00	

## ENGINE ROOM.

12 windows (\$8) . . . . .	\$96.00	
660 ft. gravel (5c.) . . . . .	33.00	
Painting . . . . .	25.00	\$764.08

Roof of retort house and water gas house, 79,695 sq. ft. at 70c. . . . .	\$5,578.65	5,578.65
		<u>\$12,799.00</u>

## No. 28. RETORT HOUSE (CONTENTS).

10 benches @ \$1,800 . . . . .	\$18,000.00	
Boilers and stack (220) . . . . .	2,400.00	
148 feet 12-inch pipes @ \$1.50 . . . . .	222.00	
100 feet 12-inch pipes, special, . . . . .	350.00	
Feed pump . . . . .	100.00	
Tar pipe, 92 ft. 4-in. @ 40c. . . . .	37.00	
Tar pipe, 74 ft 6-in @ 60c. . . . .	44.00	
Steam, water and gas connections . . . . .	300.00	
Bench foundations . . . . .	478.00	21,931.00

## No. 29. WATER GAS AND ENGINE ROOM (CONTENTS).

Water gas plant . . . . .	\$12,000.00	
Tank pump, set up, . . . . .	150.00	
308 12-in. pipe . . . . .	30.00	
8 ft. 6-in. pipe . . . . .	4.00	
30 ft. 16-in. pipe . . . . .	45.00	
Piping . . . . .	200.00	12,469.00

## No. 30. COAL SHED.

742 cu. yds. excavation (30c.) . . . . .	\$222.60	
223 cu. yds. back filling (25c.) . . . . .	55.75	
185 cu. yds. puddling (50c.) . . . . .	97.50	
1,189 ft. flaggers (35c.) . . . . .	416.50	
680 sq. yds. concrete (60c.) . . . . .	408.00	
283,000 brick \$10) . . . . .	2,830.00	
Stone . . . . .	16.00	
21,500 ft. spruce timber (26c.) . . . . .	559.00	
10,000 ft. roof boards (30c.) . . . . .	300.00	
1,318 ft. plank (25c.) . . . . .	32.95	
7 windows (\$8) . . . . .	56.00	
2 doors (\$12) . . . . .	24.00	
130 ft. cornice moulding (50c.) . . . . .	60.00	
135 ft. base boards . . . . .	25.00	
1,800 ft. clapboards (3c.) . . . . .	54.00	
4,300 ft. gravel (5c.) . . . . .	215.00	
1,860 ft. outside boards (3c.) . . . . .	55.80	
30,000 shingles (\$7 per M) . . . . .	210.00	5,637.75

**No. 31. COAL SHED (CONTENTS).**

Discharging machinery . . . . .	\$2,500.00
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**No. 32. TANK NO. 1.**

1,162 cu. yds. excavation (30c.) . . . . .	\$348.60	
731 cu. yds. back filling (25c.) . . . . .	182.75	
Concrete . . . . .	70.00	
71,920 brick (\$10 per M) . . . . .	<u>719.20</u>	1,320.55

**NO. 2.**

2,100 cu. yds. excavation (30c.) . . . . .	\$630.00	
1,202 cu. yds. puddling . . . . .	601.00	
378 cu. yds. back filling (25c.) . . . . .	94.50	
23,000 brick (\$10 per M) . . . . .	<u>230.00</u>	1,555.50

**NO. 3.**

89 cu. yds. excavation (30c.) . . . . .	\$26.70	
29½ cu. yds. concrete (\$2) . . . . .	59.00	
45,836 brick (\$10 per M) . . . . .	458.36	
2,500 ft. plank (25c.) . . . . .	<u>62.50</u>	\$506.58

**NO. 4.**

106 cu. yds. excavation (30c.) . . . . .	\$31.80	
35½ cu. yds. concrete (\$2) . . . . .	71.00	
86,232 brick (\$10 per M) . . . . .	862.32	
1,060 ft. plank (25c.) . . . . .	<u>26.50</u>	991.62

**NO. 5.**

13 cu. yds. excavation (30c.) . . . . .	\$3.90	
4½ cu. yds. concrete (\$2) . . . . .	9.00	
7,128 brick (\$10 per M) . . . . .	71.28	
64 ft. flaggers (35c.) . . . . .	<u>22.40</u>	106.58

**TANKS.**

3 iron tanks . . . . .	\$750.00	
1 oil tank . . . . .	<u>1,300.00</u>	<u>2,050.00</u>
		\$6,531.00

**No. 33. STORE SHED.**

44½ cu. yds. excavation (30c.) . . . . .	\$13.35	
37 cu. yds. back filling (25c.) . . . . .	9.25	
225 ft. flaggers (35c.) . . . . .	78.75	
273 cu. yds. concrete (60c.) . . . . .	163.80	
6,146 ft. spruce timber (26c.) . . . . .	160.79	
2,000 ft. hemlock (25c.) . . . . .	50.00	
22½ M shingles (\$7) . . . . .	157.50	
1,550 ft. spruce boards (3c.) . . . . .	<u>46.50</u>	679.94

No. 34.

GENERAL PIPING

(EXCEPT TAR DRAINS IN RETORT HOUSE).

4-in. water pipe, 315 ft., at 22 lbs. . . . .	\$139.00	
16-in. penstock and setting . . . . .	1,440.00	
6-in. water pipe, 256 ft., at 60c. . . . .	154.00	
2½ in. oil pipe, 180 ft., at 30c. . . . .	54.00	
Drain oil tank to river, 40 ft., at 35c. . . . .	14.00	
6-in. drain, W. G. tar, 75 ft., at 45c. . . . .	34.00	
6-in. drain from retort house to tank, 185 ft.		
Drain between tar wells . . . . . 25 ft.		
Drain between tar wells . . . . . 25 ft.		
	235 ft. at 45c., .	103.00
16-in. W. G. pipe, 320 ft., at \$1.50 . . . . .	495.00	
12-in. W. G. pipe, 198 ft., at \$1.10 . . . . .	218.00	
6-in. W. G. pipe, 12 ft. . . . .	6.00	
16-in. discharge pipe, 30 ft., at \$1.50 . . . . .	45.00	
12-in. pipe, 75 ft., in purifying room, etc. . . . .	82.00	\$2,784.00

No. 35.

STREET MAINS.

Cast iron mains . . . . .	\$60,000.00	
Lead in mains . . . . .	4,408.00	
Extra for pavement . . . . .	3,276.00	
Wrought iron mains . . . . .	4,841.00	72,525.00

DETAIL OF WROUGHT IRON MAINS.

7,953—2½ in. at 21c. . . . .	\$1,670.00	
6,776—2-in. at 18c. . . . .	1,219.00	
3,125—1½ in. at 16c. . . . .	500.00	
2,884—1½ in. at 15c. . . . .	333.00	
7,995—1-in. at 14c. . . . .	1,119.00	4,841.00

No. 36.

VALVES.

36— 3-in., \$5.60 plus \$1.00 . . . . .	\$237.00	
21— 4-in., \$7.00 plus \$1.00 . . . . .	168.00	
26— 6-in., \$9.50 plus \$1.00 . . . . .	247.00	
5— 8-in., \$16.00 plus \$2.00 . . . . .	90.00	
5— 12-in., \$31.00 plus \$2.00 . . . . .	165.00	
1— 16-in., \$45.00 plus \$2.00 . . . . .	47.00	954.00

No. 37.

VALVE BOXES.

94 boxes, 63 @ \$5.00 } \$5.00 . . . . .	470.00
31 @ \$3.00 }	

No. 38.

METERS IN USE.

Meters in use @ 30 % off list, come to . . . . .	\$18,210.00	
Delivery and testing at 75c. . . . .	1,876.00	20,086.00

<b>No. 39. METER SHELVES.</b>		
1,700 @ 35c. . . . .	\$795.00	
81 @ 35c. . . . .	28.00	\$823.00
		<hr/>
<b>No. 40. METERS IN STOCK.</b>		
Meters . . . . .	\$905.00	
Testing, etc., @ 26c. . . . .	28.00	933.00
		<hr/>
<b>No. 41. SERVICES.</b>		
30,500 ft. of services, supplying 2,000 consumers, @ \$5.00 each . . . . .		10,000.00
		<hr/>
<b>No. 42.</b>		
C. I. pipe, or lead, and specials . . . . .	\$1,633.00	
Gates . . . . .	235.00	
Gate boxes . . . . .	53.00	
Wrought pipe and fittings . . . . .	1,328.00	
Tools, etc., . . . . .	1,750.00	4,999.00
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<b>No. 43.</b>		
Bridge over canal . . . . .	\$650.00	
Land . . . . .	50,153.00	50,803.00
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## SUMMARY.

1. OFFICE . . . . .	\$1,732.00	
2. GASOMETER No. 1 (Building) . . . . .	7,964.00	
3. GASOMETER No. 1 (Contents) . . . . .		3,033
4. GASOMETER No. 2 (Building) . . . . .	10,950	
5. GASOMETER No. 2 (Contents) . . . . .		6,999
6. GASOMETER No. 3 (Building) . . . . .	19,347	
7. GASOMETER No. 3 (Contents) . . . . .		11,102.00
8. EXHAUSTER ROOM . . . . .	1,071	
9. EXHAUSTER ROOM (Contents) . . . . .		3,120
10. CONDENSER ROOM . . . . .	550	
11. CONDENSER ROOM (Contents) . . . . .		6,631
12. WASH ROOM . . . . .	586	
13. PURIFYING ROOM . . . . .	2,996	
14. PURIFYING ROOM (Contents) . . . . .		8,115.00
15. PASSAGEWAY . . . . .	245.00	
16. BLACKSMITH SHOP . . . . .	380.00	
17. HORSE SHED . . . . .	50.00	
18. PIPE SHOP . . . . .	1,084.00	
19. STATION AND HOUSE METER ROOM . . . . .	1,413.00	
20. LIME ROOM . . . . .	1,450.00	



21. VALVE AND W. G. METER ROOM . . . . .	\$1,462.00	
22. VALVE AND W. G. METER ROOM (Contents) . . . . .		\$2,485.00
23. STATION AND HOUSE METER ROOM (Contents) . . . . .		1,807.00
24. GOVERNOR . . . . .		260.00
25. OFFICE FURNITURE, ETC. . . . .		2,040.00
26. CONCRETE . . . . .		500.00
27. RETORT HOUSE, W. G. HOUSE AND ENGINE ROOM . . . . .	12,799.00	
28. RETORT HOUSE (Contents) . . . . .		21,931.00
29. W. G. AND ENGINE ROOM (Contents) . . . . .		12,461.00
30. COAL SHED . . . . .	5,638.00	
31. COAL SHED CONTENTS (Machinery) . . . . .		2,500.00
32. TANKS . . . . .	6,531.00	
33. STORE SHED . . . . .	680.00	
34. GENERAL PIPING . . . . .		2,784.00
35. STREET MAINS . . . . .		72,525.00
36. VALVES . . . . .		954.00
37. VALVE BOXES . . . . .		470.00
38. METERS IN USE . . . . .		20,086.00
39. METER SHELVES . . . . .		823.00
40. METERS IN STOCK . . . . .		933.00
41. SERVICES . . . . .		10,000.00
42. MATERIALS ON HAND . . . . .		4,990
43. BRIDGE AND LAND . . . . .	50,803.00	
	\$127,731.00	\$196,566.00
		127,731.00
		<u>\$324,297.00</u>

Q. What, in your opinion, was, in January, 1898, and from thence on, the fair market value, structurally, of this gas plant?

A. \$324,297.

Q. Is there any change in the market that renders that more valuable at the present time than in January, 1898? A. Yes, the iron and lumber markets have certainly gone up.

Q. And to what extent? A. The iron market, so far as my information goes, has gone up more than about 30 per cent. on pipe, and in the neighborhood of 75 per cent. on tank iron, if not more, and the lumber, I have absolutely no present knowledge of, but two months ago that had gone up about 20 per cent., that is, the price on lumber.

Q. Have you made any figures as to the increase in the structural value of this plant over these figures, \$324,297, by reason of any rise in the markets? A. No. I was requested to make the figures as of last year.

Q. January, 1898? A. February, 1898.

Q. Was there any difference between January and February, 1898? A. Not that I know of.

Q. Then without any consideration of the increase in value, by reason of the rise in the market, you found this structural value in February, 1898, to be \$324,297? A. Yes, sir.

Q. Now, have you in those figures taken into consideration at all the question of engineering, or contingencies, or interest upon investment, or loss of profit? A. I have not.

Q. Will you be kind enough to tell the Commission what sum, if any, should be added to this structural value of \$324,297, by reason of engineering, contingencies, loss of business, or interest? A. A fair engineering charge for a lay-out of this whole plant, and for the contingencies arising in the course of its erection, putting in the mains, and so forth, would be approximately 5 per cent. for engineering, and 5 per cent. on the contingencies, 10 per cent. in all.

Q. That would be how much? A. \$32,429.70.

Q. Well? A. The question of interest is involved with the loss of profits. The present opportunities for business are said to amount to \$33,000 a year. It would probably be at least two years before those profits could begin to be realized, so that the loss of profit would amount to \$66,000 in the two years. But considered solely as a plant to be erected, the interest charges would be much less than that, being probably approximately 5 per cent. on the capital invested. I mean interest on the money as it goes into the plant, because the plant could not be built in one day, but would take a long time.

The CHAIRMAN. That applies during the time of the construction?

The WITNESS. And the time before they begin to make profits.

Q. If that loss of profit for two years is added to your engineering and contingencies it would make \$98,429.70, which should be added to your structural value? A. Yes, sir.

Q. If interest upon the investment should be added, instead of this loss of profit for two years, how much would that amount to? A. In my opinion it would amount to about 5 per cent. on the structural value, together with the 10 per cent. which has been added for engineering and contingencies.

Q. Have you got it totalled, what your structural value together with engineering and contingencies is? A. I have not.

Q. It would be \$356,726.70? A. Yes, something of that kind.

Q. If you added to that, instead of the profits, the interest, how much would that interest be, to be added? A. I should reckon it to be about 5 per cent. on that total.

Q. For how long a time? A. Five per cent. on that total, because the whole money would not be invested in the plant until the completion of the plant.

Q. Then you would add interest for two years? A. Not at 5 per cent. I think 5 per cent would cover the interest for two years.

Q. Five per cent. on \$356,726.70? A. Yes, sir.

Q. So that to the \$356,726.70 there should be added \$17,836.30? A. I think those to be the figures.

Q. This schedule of valuation gives all the various details that constitute the plant? A. Yes, sir.

Q. How did you arrive at your valuation of materials, for instance? A. From my knowledge of the value of materials in Springfield.

Q. Is there any difference in the value of materials in Springfield and Holyoke, eight miles distant? A. I do not know that there is any.

Q. And with reference to labor? A. The labor is the same in the two places, outside of city labor. City labor is higher in Holyoke.

Q. You mean the employees of the city? A. The employees of the city are paid higher wages, I believe, in Holyoke than in Springfield.

Q. The summary of this valuation is contained upon the last page of your schedule? A. It is.

Q. How did you arrive at your valuation of the mains? A. I arrived at those by comparison with what had been done under my own charge in Springfield, where we had put in a certain amount of mains of a certain weight and of a certain length. I should say, a certain length of main of a certain weight. I found that the weight and the length of the mains in Holyoke had a certain relation to the length and the weight of the mains laid in

Springfield, and as Springfield is situated almost exactly as Holyoke is, I deduced from that the Holyoke mains, if laid as in Springfield, would have cost \$60,000. That is, the cast iron mains would have cost \$60,000.

Q. Well, at what depth did you figure those mains as laid?

A. I figured those mains as laid at an average depth of 3 feet.

Q. If you discovered that they were laid three feet and a half from the surface of the earth to the top surface of the pipe, would that increase your figure? A. That would have increased the figure of \$60,000.

Q. How long were you, Mr. Fowler, in your examination of the plant, and the making of your estimates? About how long?

A. I have known the gas plant for a long time. How long I have been busied in this particular work I really am unable to say.

Q. Whether it was a long time or a short time, many days or few days? A. I have put in at least a week on this report alone, without considering my former acquaintance with the plant.

Q. You have been acquainted, you say, with this plant for how many years? A. I really can't tell. It must be at least 12 years.

Q. What do you say with reference to its condition as a plant, modern and up-to-date, or otherwise? A. It is a plant in good condition and up-to-date.

Q. And in your valuation of the plant did you go into any system of depreciation? A. No, I took the plant as it is.

Q. And valued it as it is? A. Yes, sir.

Q. Now, what do you say with reference to the care that has been taken of the plant, and the renewals and repairs? A. So far as I can see, the plant is in perfectly good repair.

Q. Is there anything obsolete in the plant? A. No. The only thing is that the governor is not a modern governor, and it does not take care of the pressure as it perhaps might.

Q. How much of an item is the governor? A. A very small item indeed.

Q. How much? A. Well, I have really forgotten; it is very small.

Q. What page is that on? A. I don't know.

Mr. GOULDING. The last page, the 24th item.

Q. I want to ask you with reference to that a moment. What is the difference between that and the most modern governor?

A. The most modern governor takes care of the pressure according to the output.

Q. Those are automatic? A. Yes, those are automatic.

Q. Has this governor a system of weights? A. This governor has a system of weights.

Q. What is the effect of those? A. It regulates the pressure on the mains, but it has to be done by hand; the weights have to be shifted by hand.

Q. Does it do the work as satisfactorily, I mean in results, as your automatic governor? A. I believe it does.

Q. Then I won't spend any more time on that. What will you say with reference to the condition of the pipe up there? I don't suppose you have dug along the line of the pipe? A. I have not seen any pipe in Holyoke. You allude to the underground pipe?

Q. I mean by the pipe, the mains. A. The mains; I have seen none of it.

Q. How are you able to arrive at any opinion as to their condition—any opinion as to their value? A. I am informed that they are now delivering gas successfully in Holyoke, and in the neighboring city —

Q. You mean by that, Springfield? A. Springfield; the pipes which have been down there since the plant was started, fifty years ago, are today in thoroughly good condition; that is, those of them which I have seen. Of course I have not seen many of those; and a great many of them, of the original pipes, have been either abandoned or taken up; but those which I have seen are apparently in as good shape as they were when they were laid.

Q. You speak of some of the pipes having been abandoned or taken up. For what reason? A. On account of the enlargement of the plant.

Q. Assuming that the pipe has been in the ground fifty years, and it is doing satisfactory service at the end of fifty years, what is the length of life of that pipe? How much longer does it have to live? A. It is certainly not determined, and I

see no reason for giving any definite life to that pipe. It is a thing that is practically unlimited.

Q. This is a lead jointed pipe system? A. I understand the joints are all made with lead.

Q. And which is the more expensive system, a lead jointed system or the cement system? A. Lead joint system.

Q. And appreciably more? A. Very considerably more.

Q. This is a double plant, if I may so express it, coal gas and water gas? A. It is.

Q. Whether it is advantageous or disadvantageous to run those two plants in conjunction? A. It is advantageous.

Q. Why? A. It is an advantage to have two strings to one's bow in manufacturing, so that advantage can be taken of the difference in prices of material; and if it be cheaper to make water gas, water gas can be made, and if it is cheaper to make coal gas, coal gas can be made. The price of residuals also of course has something to do with that.

Q. In what way? A. Oh, that regulates the cost of making the different gases.

Q. Do you have residuals from water gas? A. Practically none.

Q. But your residuals substantially come from the coal gas plant? A. Almost entirely.

Q. And they decrease your expense account so much? A. They are so handled by almost all gas engineers—so treated.

Q. What other advantages have you in having a double string to your bow? A. The independence of labor. That is, your independence from labor, I should say. So that, for instance, if the men strike in the coal gas plant one can make water gas, and of course the other way.

Q. How are these two plants in Holyoke, the coal gas and the water gas, adapted to each other? A. Very well adapted.

Q. You examined the holders? A. Yes.

Q. The holders are covered? A. The holders are covered.

Q. And what do you say as to the propriety of that practice? A. I believe that it is to the advantage of any company so situated that it can be practically done, to cover its holders, provided they be not too large.

Q. Well, take the size of those holders up there. A. It is to the advantage of that company to have those holders covered.

Q. Why? A. For better protection, and economy of running; the smaller consumption of steam and the smaller amount of paint that needs to be used from time to time.

Q. And take it with your outlying holders, what other advantage is there, if any, with reference to labor? A. The difference in attention which a covered holder requires. There is no snow to be shovelled off, for instance; no watching required at night.

Q. Did you take into consideration any value of water power?

A. I did not.

Q. You have not considered that at all? A. Not at all.

Q. And how did you arrive at your value of that land?

A. That was stated; given to me by the officials of the Holyoke Water Power Company.

Q. Mr. Sickman? A. Yes, sir.

Q. So far as the land is concerned you took the statement of somebody else as to its market value? A. I took the statement of somebody else.

Q. Mr. Fowler, whether or not there is use for this half mill power there? A. There is use for a certain amount of power in the gas department.

Q. And for what purposes? A. For running the exhausters and the scrubbers. That is what it is not used for. It might also be employed for running a coke crusher, if that were conveniently situated.

Q. And whether or not that would substantially require a half mill power—those things you have enumerated? A. No, it wouldn't require as much as that.

Q. Is there a blower connected with the water gas plant? A. There is.

Q. Of course the blower connected with the water gas plant could be run by water power? A. It might be.

Q. Take that into consideration, and what part of the mill power could that plant use advantageously? A. All of that together, the blower, in connection with the present moving machinery, would almost use a half mill power.

Q. Mr. Fowler, have you given consideration to the question of present opportunities for present increase of gas business in the city of Holyoke? A. Not specially in the city of Holyoke.

I have compared, to a certain extent, the business now done there with the business done in other cities of the Commonwealth, as shown by the report of the board of gas and electric light commissioners.

Q. Living so near Holyoke, you know the character of the pipe and the character of the town? A. To a certain extent.

Q. What do you say your judgment is as to present opportunities for the increase of present business there?

Mr. GREEN. Of course we have an exception to that.

The CHAIRMAN. Yes.

A. The opportunities for an increase, for a larger output in Holyoke, are in my opinion very good.

Q. Good for how much, in your opinion? A. The business, thoroughly canvassed, should increase in Holyoke to the extent of a third or a half.

Q. Increasing, then, if profitable,—increasing the profits? A. Increasing the profits of the owners of the plant.

Q. How much, in your opinion? A. The increase of a third of the output ought to increase the profits 40 per cent. If the output be increased one-third the profits should be increased 40 per cent.

Q. Mr. Fowler, assuming that the net present earning capacity of this plant is the sum of \$33,600 per annum, and assuming that there is a present opportunity for present increase of business, as you have already testified to, what do you say, in round numbers, is the present fair market value of this gas plant of the Holyoke Water Power Company? A. The assumptions that you speak of would make the earning capacity, I believe, approximately \$46,000, as I reckon it out in my brain. If that be capitalized, as has been ———

Mr. GREEN. Pardon me just a moment; of course we have an exception to this.

The CHAIRMAN. Certainly.

A. If that be capitalized on a 5 per cent. basis it would be something over \$900,000.

Mr. GOULDING. What does he mean by \$46,000?

Mr. BROOKS. That is the 40 per cent. added to the \$33,000.

Q. What in your opinion, then, is the fair market value of



this plant of the Holyoke Water Power Company now, and what was it in January or February of 1898, in round numbers? A. On that assumption, if it be capitalized at 5 per cent. of the earnings, it would be \$900,000.

Q. And whether or not in your opinion that is a fair capitalization and a fair market value of the plant? A. I believe that that has been shown to be by other companies.

Q. I do not know quite what you mean by that. A. I mean that other companies have been—I can't say anything about it from my own knowledge—

Q. I am talking about your own judgment. A. I believe it to be a fair value.

Q. That is all I am asking for, is your opinion and your judgment. Mr. Fowler, assuming that 11 cents per thousand feet are expended upon this plant per annum in renewals and repairs, what do you say, if anything, under those circumstances, should be allowed for depreciation from year to year?

Mr. GOULDING. A thousand feet of gas sold?

Mr. BROOKS. Yes, of gas sold.

Q. What do you say under those circumstances, with that expenditure, should be allowed, if anything? A. I should say that covered the depreciation.

Q. What do you say would be a fair expenditure for repairs and renewals per thousand feet? A. In the neighborhood of 6 cents.

Q. Do you know the capacity of this plant—the present capacity? A. I know it by estimate; I don't know that it has ever been tested.

Q. What do you say is its present capacity? Not what it is putting out, but what its present capacity for putting out is? A. In my judgment that plant ought to be able to put out 800,000 feet per day.

Q. Do you know about how much it is putting out per day? A. I do not. That is, I have forgotten the statement that Mr. Snow made.

Q. 350,000, if I am correct about that. I will assume that. Assuming it is putting out 350,000 a day, you will say it has a capacity twice as great as that? A. Yes, sir.

Q. And is that capacity there now, or has something got to

be added to the plant to give it that capacity? A. I believe that that capacity is there now.

Q. And it is there without any further expenditure? A. Without further expenditure.

Q. Mr. Fowler, it is suggested to me that I ask you with reference to your recent experience in building gas plants, or building extensions of gas plants? A. Four years ago I was consulted regarding almost the total rebuilding of the plant in Westfield, and three years ago I rebuilt the Springfield works from the retort house to the station meter, putting in all of the machinery for taking care of the gas, and also put in a water gas plant with the various buildings required.

Q. Whether or not you erected buildings at your Springfield plant for your purifiers? A. Yes, for purifiers for the water gas plant.

Q. What valuation do you place upon the meters? I suppose that is on the last page. A. Meters in use, \$20,086.

Q. How did you arrive at a valuation of the meters? You didn't see them, I suppose, did you—those that are in use? A. No. The meters in use I took at 30 per cent. off the regular list price, and added thereto the delivery and testing at 75 cents apiece.

Q. How did you arrive at that conclusion of the value without seeing the meters? What is your reason for taking off 30 per cent. or for making any valuation? A. The 30 per cent. is, I believe, the customary difference allowed, the customary discount from the price list, which the makers made.

Q. Did I understand you to say that you took the meters as new? A. As new.

Q. Why did you do that? A. The wear and tear on meters, the loss on meters, is so extremely small that it is not worth consideration.

Q. And did you take into consideration the propriety of their wearing? A. The propriety?

Q. Yes; whether or not they are doing proper service. Do you take that into consideration when you make up your estimate? A. I do.

Q. And what else do you take into consideration? A. The expenses of testing by the state inspector, and delivering them at the various locations where they are used.

Q. I see you have an item there of services, item 41, \$10,000?

A. Yes, sir.

Q. How do you arrive at a determination of that? A. Those are the small pipes running from the mains to the curb on each side—it may be on each side of the street; approximately, in Holyoke, 15 feet long each; to which I have assigned an arbitrary cost of \$5.00, inasmuch as the expense of putting in the service, a short piece, 15 feet long, is considerably greater than the expense of putting in any other pieces of pipe.

Q. Is that in your opinion, the fair market value of those services? A. It is.

Q. As laid? A. Laid.

Q. Anywhere in your estimate have you taken into consideration the paving over the mains? A. I have added a small amount to the estimate on street mains for the paving, the increased value of them inasmuch as they are, under paving.

Q. You have taken those under pavement and allowed—  
A. Yes, a certain proportion.

Q. How much? I don't see it. A. That is \$3,276, item 35. You will find it under the detail of item 35.

Q. That is, you allowed for pavement \$3,276? A. Yes.

Q. On what basis did you arrive at that conclusion? A. I can't tell you that; it has gone from my mind.

Q. Whether or not— A. As a result of the experience I have had and the figures at that time before me.

Q. Do you know of whom the Holyoke Water Power Company purchased its mains? A. I understand they have been purchased from R. D. Wood & Co.

Q. Whether they are reputable manufacturers? A. They have a good reputation.

Q. Do you purchase yours there? A. I have purchased our pipes there and I have always asked them to bid on our supplies, and I gave them the contract when their price allowed me to do so.

Q. What do you mean by that? A. I mean when they were the lowest bidders they have had the contract.

Q. Now with your experience, for what outlay should gas companies do business? I mean the percentage of gross receipts. A. The expenses of manufacturing gas should be about 60 per cent. of the income from the gas.

Q. What do you mean by that? Do you mean by that the gross receipts? A. I mean the net receipts from gas.

Q. The receipts after the deduction for abatements? A. After the deduction for abatements. Those expenses, however, as I believe I have already stated, are not exactly as expressed in the report of the gas and electric light commissioners, but are reduced by the amount of income from residuals.

Q. If I may be permitted a leading question, do you mean by that that you add your residuals to the 40 per cent.? A. No.

Q. Or do you add them to the 60 per cent.? A. I do neither.

Q. What do you do with the residuals received from your coal gas plant? A. I believe I am correct in saying that, as manufacturers of gas—that engineers regard themselves as manufacturers of gas—and that we pay part of the expense of manufacture by the sales of our residuals. In that way we can find out exactly what our price per thousand feet of gas is.

Q. That is, then you subtract? A. We subtract the income from residuals from the expense account.

Q. And then you mean by that, that is 60 per cent. upon the balance? You take 60 per cent. of the balance? A. That balance will leave the net expenses and will be approximately 60 per cent. of the net income for gas. If I might make a—

Q. Will you illustrate that? Take \$10,000 as your receipts from gas after your abatements are deducted. A. If the receipts for gas, after abatements be deducted, be \$100,000, in a coal gas plant the residuals might be assumed to amount to \$20,000. On that basis the expense would amount to \$80,000, as given in the commissioners' report. The total gross receipts would be \$120,000. The total gross expenses would be \$80,000, but of that \$80,000 gas engineers regard \$20,000 as paid by the residuals, so that the net expense for making gas is only \$60,000, and the net income from gas is \$100,000.

The CHAIRMAN. They make \$40,000.

The WITNESS. They make \$40,000, but the percentage varies.

Q. What do you mean by that? A. Why, I mean the gross receipts. The expenses are 66 2-3; and the receipts for gas, considering residuals as paying part of the expenses—

Q. Yes? A. Then it is only 60 per cent.

Q. I see. A. There is no other way of making a fair comparison between the coal gas and water gas manufacture.

Q. Mr. Fowler, what do you say with reference to the location of this gas plant? A. It seems to me to be an ideal location.

Q. In what ways? A. It is centrally located, so far as distribution goes, particularly when the Bridge street holder be considered as a part of the plant; and it is away from any neighbors to whom it might possibly be obnoxious. It has good drainage.

Q. Mr. Fowler, what do you say with reference to the advantageousness or disadvantageousness of the use of what is called small pipe in this Holyoke system? A. The Holyoke system, considering the layout of the plants, the Bridge street gasometer at one end of a large line and the works at the other, where there is also a holder, seems to me peculiarly adapted to the use of small pipe; that is, that small pipe there would be of less detriment than in most other places.

Q. And with reference to the small pipe there, whether or not, in your opinion, it is disadvantageous to use the sizes that they use in this system? A. The report seems to me to show that the amount of small pipe is not above the average.

Q. There is one other question that I desire to ask you outside of this gas plant. Have you ever had anything to do with dynamos? A. Yes.

Q. Have you had any experience with the so-called Schuyler dynamos, such as the Holyoke Water Power Company has in its electric light plant?

Mr. MATTHEWS. Have you qualified him as an electrical engineer or expert?

Mr. BROOKS. No.

Mr. MATTHEWS. I do not think this question is competent, then.

Mr. BROOKS. Am I not qualifying him? I have not come to anything that you could really object to; I am trying to ask him something about his experience.

Mr. MATTHEWS. All right; go ahead.

A. I was treasurer and manager of the Westfield Gas Light

Company for three years and somewhat more, from the early part of 1888 until 1890—that would be two years instead of three—and during that time I had under my charge three Schuyler dynamos.

Q. Have you had experience with other dynamos than the Schuyler? A. Very little experience with other dynamos.

Q. Have you seen other dynamos, seen their workings? A. I have; seen them working.

Q. I will ask you what you observed with reference to the Schuyler dynamos that you had in use in your Westfield gas and electric light plant. A. Those three dynamos have been under my observation from the fall of 1887 until the present time. After giving up the management of the Westfield plant I remained a director in that company and was practically the consulting engineer. The running of those dynamos has been since 1887 under my observation. They have run very well since that time; outside of the little repairs on brushes and commutators and such things, nothing has been done on any of those three dynamos, though they have practically run every night for those twelve years. They are dynamos of 35 and 40 light capacity. They are particularly economical in the use of oil. In 1887, at the request of the engineer of the plant, I bought a barrel containing 52 gallons of electric oil. In 1888 those three dynamos were moved to a new station, and all the oil was emptied out of the boxes and thrown away. In 1889 I became tired of seeing that barrel of electric oil at the station, and it was shipped back to the seller, and we received credit for 49 gallons of oil.

Q. So that in a period of — A. Of two years, on three dynamos, we had used three gallons of oil and thrown away the boxes full once.

Q. What is the condition of those dynamos? A. The condition is very good today.

#### CROSS-EXAMINATION.

By Mr. MATTHEWS.

Q. Have you ever valued any gas or electric light plants for purposes of sale? A. No, sir.

Q. Never? A. No.

Q. Except, of course, the one under discussion? A. Certainly; I understood that.

Q. You have not examined any others? A. No.

Q. Either gas or electric? A. Either gas or electric.

Q. Have you ever written anything for publication on either subject? A. Do you mean on the valuation of plants?

Q. Yes? A. Nothing on the valuation of plants.

Q. Either gas or electric? A. Either gas or electric.

Q. Anything on the valuation of gas properties? A. Nothing on any valuation.

Q. Or stocks—gas stocks? A. No.

Q. Have you written on the method and cost of operating gas works? A. I really am unable to answer that; I mean I do not remember.

Q. What do you mean by that? Can't you remember whether you have written anything at all on that subject? A. No, I cannot; I cannot. My impression is that one of the first articles I ever made for the New England Association of Gas Engineers contained in it something about the cost of running the electric plant in connection with a small gas works, but it is nearly ten years ago and I have forgotten.

Q. Where would that article be found? A. That would be found in the American Gas Light Journal of 1890, probably in the February or March number.

Q. Have you written anything else for publication touching any of the matters about which you have given testimony? A. I believe I must have. I have written—may I answer that—?

Q. Certainly, answer it your own way. A. I have written a good many articles, I should say practically almost one a year, to be read before the meetings of the New England Gas Association, but how many of them are concerned with the pecuniary side—that is, the valuation side—I cannot tell, but it has been almost always something in connection with the manufacturing side, the engineers' side.

Q. Any article that you may have written for that association is published in the annual proceedings? A. No—yes, published as a part of the annual proceedings in the American Gas Light Journal.

Q. Have you written for any other periodical or magazine or

publication than the American Gas Light Journal? A. No. This was written for the Association, but published in the American Gas Light Journal, also in other gas journals. I merely give you that one reference.

Q. Is everything that you have written upon the subject of either gas or electricity to be found, if published, in the American Gas Light Journal? A. Yes.

Q. Have you had any experience with water power? A. May I ask in what way?

Q. In connection with an electric light plant? A. None at all.

Q. Never managed a plant which was partly or entirely run by water? A. Not a lighting plant.

Q. Did you make a personal examination of the gas plant of the Holyoke Water Power Company? A. Of all of it except the Bridge street holder, and of course the mains and the meters.

Q. From what sources did you get your quantities that you used in preparing your schedule of values? A. There was a schedule of quantities given me by the officials of the Holyoke Water Power Company from which some of them were deduced, and also from the plans the quantities were reckoned out.

Q. Then you used to some extent the estimate of quantities prepared by the engineer of the Holyoke Water Power Company? A. Yes.

Q. For the use of the experts for the Company? A. Yes, sir.

Q. You mean the estimates of quantities prepared by Mr. Walther? A. I really cannot tell whom they were prepared by.

Q. The one that has been put in evidence in this case? A. So I understand.

Q. You say you used that in part, but not entirely? A. Yes.

Q. Why didn't you use it entirely? A. I think I was wrong then in making my statement; I think I did use that entirely, but I reckoned out some of the quantities from the plans also.

Q. To check up Mr. Walther's estimates? A. To check up the estimate of Mr. Walther.

Q. Did you find them coincide? A. I did find them coincide on those things which I reckoned up.

Q. That is, wherever you tried to verify Mr. Walther's esti-



mates by a measurement yourself from the plan, you reached the same result that he had A. Yes.

Q. Then, in substance, your estimate of values is based upon Mr. Walther's schedule of quantities? A. Yes.

Q. You did not make any estimate of the No. 2 holder? A. Yes.

Q. And did you take Mr. Sawin's estimate of quantities for that? A. I don't know whose estimate of quantities it was.

Q. You took one that was furnished you by the company? A. One that was furnished me.

Q. And one that has been put in evidence in this case? A. That I am not sure of.

Q. Not sure of? A. No.

Q. But for the main gas works you used Mr. Walther's? A. So I understand.

Q. In estimating the value of the buildings, which, according to your schedule, aggregated about \$77,000, you used the quantities estimated by the engineers of the Holyoke Water Power Company, and you multiplied those quantities, I suppose, by certain prices. What did those prices represent, and where did you get them? A. Those I got from my experience in building in Springfield.

Q. Did you take the prices that it would cost to furnish and put in place the given quantities new? A. New.

Q. That is, your valuation of the buildings represents what it would cost to reproduce those buildings today new? A. No, what it would have cost, if you will excuse me, at the time at which—a year ago today.

Q. Yes, that is to say, the estimate that you made of the value of the buildings of the gas plant of the Holyoke Water Power Company represents what you consider would have been the cost to reproduce those buildings new in January or February, 1898? A. Yes; the contract price on those buildings, it might be stated to be.

Q. What a contractor would charge to build them? A. Yes.

Q. Did you follow the same course with regard to the machinery? A. Yes, sir.

Q. Your valuations of the machinery of the Holyoke Water

Power Company represent the cost to produce them new as of January or February, 1898? A. Yes.

Q. Is that so? A. The contract price of the reproduction of the individual parts.

Q. New? A. New.

Q. When you say the contract price you mean what you could buy them of the manufacturer and install them for? A. And install them for.

Q. That is, what the manufacturer would agree to furnish and install the machinery for? A. Exactly.

Q. Before I leave the machinery I want to know if I understand you correctly that you followed that practice, estimating the cost of machinery new as of January or February, 1898, with respect to all the machinery, including the mains? A. Yes.

Q. Coming back to the buildings, where did you get the various prices which you have set against the respective quantities? A. Those I obtained from the— They were the best information I could obtain in Springfield.

Q. And you assumed that the price would be about the same in Holyoke? A. About the same in Holyoke, yes, sir.

Q. You said the prices that the City of Holyoke paid were higher, didn't you? A. Only—Mr. Green expressed it better than I did, inasmuch as the city paid an artificial price to laborers on account of their laws—their ordinance.

Q. When you said that labor to the city was higher in Holyoke than Springfield, you meant that that was true of the prices paid to laborers employed by the city as a corporation? A. Exactly.

Q. You did not mean that there was any difference in the market price of labor? A. No.

Q. Between Holyoke and Springfield? A. No.

Q. You did not use a schedule of prices furnished you by the Company, but made your own estimate of prices? A. I made my own estimate.

Q. Did you confer or communicate with any manufacturers of gas appliances? A. Yes.

Q. For the purpose of getting figures? A. I did.

Q. Whom did you consult and what did you get? A. I consulted the manufacturers of the exhausters and scrubber.

Q. You mean the firms or corporations who built these identical exhausters and scrubbers? A. Yes.

Q. What item of your schedule contains those data?

A. That would be in No. 9, you know, and No. 11.

Q. Who were the manufacturers that you consulted?

A. That is the Isbell-Porter Company.

Q. The Isbell-Porter Company? A. Yes.

Q. They made the exhausters and the scrubber? A. Yes.

Q. What did you learn from them? A. I learned from them— The information that I had from them led me to put the prices on those machines which you will find here.

Q. Was that information received by you in writing? A. I presume it was.

Q. Have you the letters? A. That I cannot say.

Q. Will you produce them if you can find them? A. If I can find them, if you wish me to, I can produce them.

Q. You will do so? At least you will look for them?

A. Yes, I will look for them.

Q. What other manufacturers of gas appliances did you consult besides the Isbell-Porter Company? A. I don't believe I consulted any others except as the firm of Humphreys & Glasgow was in the case.

Q. You talked with Mr. Humphreys? A. Yes, or Mr. Randolph.

Q. Did you get any figures from them on gas machinery?

A. To a certain extent, but those are not utilized here.

Q. Those are not utilized here? A. No.

Q. Why didn't you utilize their figures? A. Because my own coincided almost exactly with those that they gave.

Q. You mean with the figures which they gave you, or the figures which they put in their estimates of value to the company? A. The figures which— Well, really, I can't tell which it was.

Q. You saw the estimates that Mr. Randolph and Mr. Humphreys prepared, I suppose? A. I have heard them read.

Q. Did you consult them when you were making yours? A. I did not.

Q. But you did consult Mr. Humphreys? A. No.

Q. Then I misunderstood you. I thought you said you had

consulted Mr. Humphreys? A. No, I said I had talked with Mr. Humphreys; I had heard their statement, or that of Mr. Randolph.

Q. When? A. Various times within the last three or four months.

Q. What statements had you heard them make? I do not mean to ask you to give everything they said, but just describe generally what the subject of the conversation was. A. The subject was on various valuations.

Q. Then you did confer with Mr. Humphreys or Mr. Randolph about the valuation of this machinery, did you? A. Yes.

Q. That is what I thought. Did you confer with any of the other experts employed by the company? A. Yes.

Q. All of them? A. I guess so. That is, with those who were on the gas side.

Q. And they conferred with you? A. Yes.

Q. How many of such consultations or conferences do you suppose that you have had during the last three or four months?

A. I think that I have had two such conferences or consultations, but whenever I have been thrown with any of the men engaged as I have been in this case, it is, of course, a very natural thing that it should come up in conversation. That, naturally, I should not be inclined to call a conference, although it may have amounted to just as much as one of the regular conferences.

Q. Besides the occasional conversations which you may have had with the various gentlemen associated with you as experts on this gas works or gas machinery you have had at least two formal conferences at which the gas experts were present, or most of them? A. Yes.

Q. And the subject of those conferences, I suppose, was to consult with reference to the value of the gas machinery and plant? A. It was.

Q. Did you get any other figures of manufacturers of gas appliances? A. No, I did not, except as they are given, of course, in the various price lists that are published.

Q. What price lists do you refer to? A. I refer as an instance to meter price lists.

Q. Who publishes a list of meter prices? A. Every maker, so far as I know.

Q. With the cash discounts? A. No. The cash discounts, so far as I know, are never published.

Q. What lists of meter prices did you use? A. I used the McDonald list; a list of D. McDonald & Co. of Albany, N. Y.

Q. Did you use any other list of gas appliances—any other price list? A. Yes, some on valves.

Q. Valves? A. Yes.

Q. Whose? A. That was, if I recollect rightly, the Chapman valve list; it was the Chapman valve list.

Q. Of Springfield? A. Yes; Indian Orchard.

Q. Did you use any other price lists of gas appliances than these? A. The wrought iron pipe lists, of course, and the wrought iron fitting list.

Q. Whose list did you use? A. I don't know.

Q. Could you refresh your memory and find out? A. Those are published, if you will excuse me, Mr. Matthews, by almost every person who deals in pipe and fittings, and so far as I know, are exactly the same. It is a trade list.

Q. I was asking rather just which one you used, which one in particular, if you could find out. A. I have half a dozen, and I don't know what one I used.

Q. You could not tell, then? A. I could not.

Q. About the cast iron pipe, did you use any list for that? A. No.

Q. You did not use any price list? A. No, sir.

Q. Of the cast iron pipe? A. No.

Q. Have you stated all the price lists which you used? A. So far as my memory goes.

Q. Those are about all that are published in the gas business? A. Practically, yes.

Q. Some machinery manufacturers do not publish price lists of their larger machinery, do they? A. Not that I know of.

Q. Did you get any prices from individual manufacturers for the larger machinery? A. No, except as mentioned.

Q. Except what? A. Except as I have already mentioned.

Q. Yes, except the exhausters? A. And the scrubber; ammonia scrubber.

Q. Did you make any effort to get prices from gas appliance manufacturers or holders? A. I did not.

Q. Or on any of the larger machines? A. On no machine.

Q. Then how do you make up your estimate of the value of the holders, the purifying pans, etc.? A. On the experience that I have had in putting in purifiers and a holder of approximately the same size.

Q. Where is the water power part? A. It is not in there at all.

Q. The machinery is not in it? A. The water power is not there.

Q. The wheel? A. The wheel is there.

Q. Well, that is what I asked you——

Mr. BROOKS. You said the water power.

Q. I meant the water power part of the plant. A. It must be No. 9.

Q. In No. 9, "Exhauster room contents," I find \$300 for water wheel? A. Yes.

Q. Can you state what machinery that wheel runs? A. It runs the exhausters and the scrubber.

Q. You said something about it running the blower. Does it do that? A. No.

Q. It does not run anything, does it, but the exhausters and the scrubbers? A. No.

Q. How much horse power would it take to run the exhausters and the scrubbers, if they were run by steam? A. It would not take more than half a dozen, if it took that.

Q. A six-horse power engine would be sufficient, would it? A. Yes.

Q. That is, a six-horse power engine would furnish all the power that is now extracted at the gas works from this water wheel? A. Yes.

Q. There is an engine on the premises, isn't there? A. Yes.

Q. What room is that in? A. It is in that same room, No. 9; see under "Engine and connections."

Q. In the exhauster room? A. Yes.

Q. What is that used for? A. That is used for running the same plant. It is a duplicate source of power.

Q. Do you know what the horse power of that engine is? A. I do not.

Q. What do you estimate its value? A. \$160. I knew the

horse-power at the time that this was made; an omission in writing.

Q. I was going to ask you how you could estimate the value of the engine without knowing its capacity. You say you did know, but you have forgotten? A. Yes, sir.

Q. You estimated its cost new at \$160? A. With connections.

Q. With connections? A. Yes.

Q. About what horse power would that be; can't you tell roughly? A. I should say an eight horse power engine; six or eight or ten horse power, along there, roughly.

Q. And that engine is used as a substitute for the power derived from the water wheel when the water is off? A. Exactly.

Q. What machinery is used to run the blower? A. An engine.

Q. Where is that engine found in your list? A. That is in the water gas plant.

Q. What number? A. That is 29.

Q. That is in your water gas plant? A. That is in the water gas plant straight.

Q. These conferences that you have referred to as having taken place between yourself and the other experts employed by the company in relation to the valuation of its gas plant—did they relate to structural value of the plant alone, or to other matters? A. Well, a great many things were talked over outside the structural value of the plant.

Q. What things, for instance? A. The probabilities, of course, of the outcome of the case in which we are at present concerned.

Q. I mean respecting valuations. A. Respecting valuations?

Q. Yes, respecting the valuations of the property which you were retained to make, was there anything done or said at these conferences except as affecting the mere structural value of the property. A. I don't understand your question, Mr. Matthews.

Q. Can you state what in general was the scope of those conferences? A. Those conferences related particularly to the cost of the various things which go to make up the plant as a structure.

Q. Did they relate to anything else besides the structural items? A. I don't think they did as conferences. If you want me to detail conversations I shall be unable to do that.

Q. I am speaking about the conferences themselves now, the formal conferences. Let me ask you whether at those conferences there was any consideration given to the cost of operating the works? A. Not in such a way before me that I was a part of that conference. I heard them mentioned. Mr. Humphrey's report concerning the expense of manufacture would be a thing that you are inquiring about, would it not?

Q. That for one, yes. A. That was only incidentally mentioned in my presence.

Q. Was the general question of what the operating expenses of a gas plant ought to be with reference to the gross income—

A. No, that was not.

Q. —one of the subjects discussed at these conferences? A. No, that was not.

Q. Are you sure of that? A. Not in my presence; that is all that I can say.

Q. What? A. That is all that I can say. It was not in my presence discussed.

Q. Was the question of what should be done with the net income of a gas company a subject discussed at these conferences? A. Not before me.

Q. Was the rate at which the net income of the Company should be capitalized discussed at the conferences? A. It was.

Q. That was one of the subjects, then, that you gentlemen conferred together about? A. It was discussed at those conferences, but that we conferred about it as a prelude to definite settling on any point would not be the fact; would not be a statement of the case.

Q. It was, however, one of the subjects discussed at these conferences? A. It was.

Q. That is to say, the rate at which the net profits of the Company should be capitalized. Now, don't you think, Mr. Fowler, that not only the rate at which the net earnings should be capitalized was discussed at these conferences, but also the proportion of the receipts from sales that would be available for capitalization? A. It was not discussed in my presence.



Q. Do you know whether it was the subject of discussion at these conferences?

Mr. BROOKS. I object to it. If he says it was not discussed in his presence he can only know because somebody told him.

The CHAIRMAN. What took place in his presence you can put in, Mr. Matthews.

Q. Did you hear any discussion going on among the other gentlemen who were present at these conferences? A. Not that I know of. I am entirely ignorant of any discussion there on that subject which you now speak of.

Q. Were you requested by counsel for the Holyoke Water Power Company to assume any percentage of profit as proper to be capitalized, or any special rate at which to capitalize the net? A. I was not.

Q. You received no instructions or request or suggestion as to the rate of capitalization? A. No.

Q. Or as to the percentage of gross income that can be capitalized or should be? A. No.

Q. Did you have any talk with anybody about this 5 per cent. other than the — A. No other than as the testimony has been given; as it was brought out in this case in Springfield, you know.

Q. What have you in mind? A. Why, I allude to Mr. Prichard's original testimony in Springfield, where the 5 per cent. business was brought out, as well as the 40 and 60 per cent.

Q. You had a prior talk, of course, and prior conferences among the experts about this 5 per cent.? A. No.

Q. I understood you to say that you had. A. Probably I am wrong in saying — The subject was up for discussion; I don't know that I talked it over or that I discussed personally anything about that 5 per cent. business.

Q. You heard it discussed by the others, didn't you? A. Yes. I say that I don't know that I did discuss it, nor would I deny it.

Q. When you heard these discussions among the other experts as to this rate of capitalization, that was prior to Mr. Prichard's testimony at Springfield? A. Yes.

Q. At some conferences that you had had together? A. Oh, it was months before.

Q. Months before? A. Yes; the whole thing had passed out of my mind at that time.

Q. Was this 5 per cent. reached by you at the suggestion of anybody? A. No, except as suggested by Mr. Prichard's testimony.

Q. Given in Springfield? A. Given in Springfield.

Q. Last week? Last week, wasn't it? A. It seems longer ago than that.

Q. Hadn't you thought of this 5 per cent. until you heard Mr. Prichard's testimony? A. Certainly, certainly.

Q. Had it been suggested to you by anybody before the evidence in this case began?

Mr. BROOKS. If your Honors please, I do not care to interrupt here unnecessarily, but he has asked the question again and again, in one form and another —

Mr. MATTHEWS. He is just going to tell us something now.

Mr. BROOKS. I did not think he was.

Mr. MATTHEWS. I thought he was.

The CHAIRMAN. Let us see whether he is or not.

Mr. BROOKS. All right; if he is —

Mr. MATTHEWS. Of course, if I have exhausted the witness' memory on the subject I will drop it.

Mr. BROOKS. It was the iteration and reiteration on that I was objecting to.

Q. What were you about to say? A. I simply said it had.

By Mr. BROOKS.

Q. What had? A. Why, whether this 5 per cent. had been suggested to me before any of these conferences.

By Mr. MATTHEWS.

Q. No, I said before the evidence in this case began. A. Oh, before the evidence in this case?

Q. It had, hadn't it? A. I had understood you to say before the conferences.

Q. The conferences were before the evidence began? A. Yes.

Q. Consequently this suggestion must have been made before the evidence began? A. Certainly.

Q. Now who made that suggestion? A. I can't tell that,

and I believe that I must have answered wrongly if I have led you to believe that there was anything said to me about this five per cent. business as applicable to this case,—anything before these conferences or before that evidence. But the idea of capitalizing gas companies at 5 per cent. on their earnings has been a familiar one to my mind for a great many years, on account of what I have from time to time seen of the sales of the stock.

Q. Then I will ask you again, so that there may be no misunderstanding. Was this rate of 5 per cent. suggested to you by anybody for application to the value which you put upon this gas plant? A. It was not.

Q. You got it from your general knowledge or experience regarding the prices at which gas stocks are sold? A. General knowledge.

Q. Respecting the prices for which gas stocks are sold, I think you said? A. Are sold.

Q. That is, it was your experience and belief that the stock in gas companies sells on a 5 per cent. basis? A. Or on a smaller basis than 5 per cent.

Q. If on a smaller basis than 5 per cent. why didn't you take a lower rate of capitalization than 5 per cent. for this case? A. I stated that I took 5 per cent.

Q. Yes, but if gas stocks sell at a lower basis than 5 per cent. I suppose you mean at a better basis? A. Well, I mean a lower; I mean to say, four and a half.

Q. Yes, four and a half, for instance. Why did you pick out 5 per cent. as the rate at which you capitalized the earnings in this case, rather than the lower rate of 4 1-2 per cent? A. Five per cent. is simply easier reckoning.

Q. Is that the only reason that induced you to select 5 per cent? A. That is practically the only reason. It would have made no difference to me whether it had been taken at 4 per cent. and a certain — It makes no difference to my mind whether it be taken at 5 per cent. and then a certain amount reckoned out, or at 4 per cent. and a certain larger amount reckoned out. The basis of capitalization is an assumed one.

Q. Yes, but it makes a big difference in your result, doesn't it? A. In the expression of your result, yes.

Q. It makes a difference in your total figures, doesn't it?

Mr. BROOKS. What total figures?

Q. In the resulting valuation which you put upon the plant, whether you capitalize it at 5 or 4 per cent., doesn't it? A. No, because the difference is in the assumption.

Q. I don't understand you. Won't you explain in your own language how you reach the opinion that it makes no difference at what rate you capitalize the earnings of a gas company in order to reach the fair market value of the company? A. I simply make the assumption, if it be capitalized at 5 per cent., then that makes the total value so much.

Q. If it be capitalized at 4 1-2 per cent. it is so much more? A. It would be so much more; if it be capitalized at 6 per cent., so much less.

Q. You do not mean to be understood as testifying, then, that you think that 5 per cent. is the fair rate at which to capitalize the earnings in this case? A. I have not said anything about the fair rate.

Q. If you said 5 per cent. is a fair basis for capitalization in this case, you did not mean that? A. I have not said that, if you will excuse me.

Q. Are you sure you did not say it? A. Not absolutely. Of course one cannot recollect with absolute certainty.

Q. If you said it, it was a mistake, then, or said by inadvertence? A. Will you please read that again?

Q. As I took it down —

Mr. BROOKS. No, the question, he wants.

(The question was read.)

A. I don't understand this.

Q. Well, my question is, Didn't you say in reply to a question by Mr. Brooks, that in your opinion 5 per cent. was a fair rate at which to capitalize the net earnings of the gas plant for the purpose of reaching your total value of \$900,000? A. My recollection of the question is not such that I could have given that answer.

Q. All you did, then, was to figure out as a problem of arithmetic what the fair market value of the plant would be if you capitalized its net earnings at 5 per cent.? A. Exactly.

Q. And you have not testified or do not wish to be understood as testifying in this case that that is the fair market value of this property? A. Which way do you put that?

Q. Either. A. I have not testified that that \$900,000 is in my opinion a fair market value for this property, as I understand the question originally put.

Q. And you do not wish to be understood as testifying that \$900,000 is the fair market value of this property, then? A. That is a very different question.

Q. All I want to get at is whether you wish the Court to understand that you testify as an expert that \$900,000 is, in your opinion, the fair market value of this gas plant or not; that is all. A. If the question is put to me,—I don't know but I am entirely wrong in answering this way, because I do not want to seem to back out of it, but the question was not put to me whether I did think it was the fair market value of the property.

Q. Can't you answer my question—whether or not you think that \$900,000 or thereabouts is the fair market value of this property? A. The gas plant alone. (Pausing.) In my opinion that is too high a valuation on that property.

Q. And you have not given, then, any valuation for this property except the valuation contained in your schedule, footing up \$324,297? A. I have not given any valuation on that property except that, with certain possible changes, which were in the way of engineer's expenses and contingencies.

Q. Now, Mr. Fowler, I wish you to tell me in what page of your schedule the mains are found? A. They are No. 35.

Q. How did you reach the value of \$64,408 for the mains, including the lead? A. In Springfield we had laid a certain number of miles of main, and in that main was a certain quantity of iron. The pipe in Holyoke and Springfield is presumably of the same price. Now the certain quantity of mains which we have laid in Springfield cost us a certain amount. From those two things I deduced the fact that the mains in Holyoke—the cast iron mains, you understand—would have cost, laid as they were laid in Springfield, this \$60,000.

Q. Are the Springfield mains cast iron mains? A. Yes. Well, of course there is a certain quantity of wrought iron, but that was excluded from the reckoning.

Q. You simply took into account the mains themselves? A. The cast iron mains.

Q. What amount had the Springfield mains cost which you used in this calculation? A. I cannot tell that; I have not it.

Q. You based your calculation on the actual cost to the Springfield Gas Light Company? A. I did.

Q. Of its distribution system? A. Of a certain proportion of its distribution system.

Q. What proportion do you refer to, or what part? A. I refer to that part which had been laid under my own superintendence.

Q. Since what year? A. Since the spring of 1890.

Q. During the past nine years—or eight years? A. Eight years.

Q. And how did that compare in length with the Holyoke system? A. I cannot tell how that was, but if you will excuse me— The weight and the length were in the same proportion. In other words, if Springfield had laid 20 miles of main and Holyoke had 32, then the weight of the iron was in the same proportion, so that the average was the same weight of iron per foot.

Q. Can you tell the length of the system, the comparative length?

The CHAIRMAN. Stop till two o'clock, Mr. Matthews.

(Noon recess.)

## AFTERNOON SESSION.

CROSS-EXAMINATION of SAMUEL J. FOWLER  
resumed.

By Mr. MATTHEWS.

Q. What was the size of these mains you put in in Springfield? A. From 16 inches to 3 inches.

Q. And all put in in the last eight years? A. Yes, sir.

Q. What is the total length of them? A. It would be in the neighborhood of 40 miles.

Q. Do you remember the total cost? A. I do not.

Q. But you used that figure of the total cost with which to arrive at your valuation of the Holyoke plant? A. Yes, sir.

Q. What percentage of 3-in. main did you have? A. I can't tell.

Q. Had any mains less than 3 inches in size been put in? A. Not in cast iron. You have asked whether we have anything less than 3 inches. We have.

Q. You use wrought iron pipe? A. We use wrought iron pipe for everything less than 3 inches.

Q. You do not use cast iron for anything less than 3 inches? A. No.

Q. You do not know the percentage of 3-in. mains to the total laid since 1890? A. I do not.

Q. It would be given in the returns of your company to the Gas Commissioners, wouldn't it? A. It would.

Q. You did not take any price per pound, then, for the iron? A. No.

Q. And you did not take any price per foot for laying the mains? A. I did not.

Q. Did you make any inquiries as to what the price of iron pipe was at the time you made this estimate? A. I did not, no. No inquiries. But having been buying pipe myself for use in Springfield, I knew what it could be sold at in Holyoke.

Q. Did you use that figure? A. I did use that figure.

Q. How did you use it? A. In making this estimate?

Q. Yes. A. The figures which I had paid during the eight years for cast iron pipe were assumed. That would bring —

Q. Do you mean assumed? A. Were taken, yes, taken from the book, including the cost of laying, not for the two items separately, but the two together. That would give this \$60,000. Now, these mains are laid deeper than the Springfield mains, which, it is my opinion, would off-set the slightly diminished value of the iron in the main.

Q. Do you mean to say that the price of iron was less in 1898 than in 1890? A. Yes, sir.

Q. Very much less, wasn't it? A. I do not think the price of iron in 1890 was as high as it is now.

Q. You don't think there was much difference between 1890 and 1898? A. My recollection is there was a difference of between three and four dollars a ton.

Q. That you ignored as fairly being offset by the depth at which the pipes were laid? A. Yes.

Q. What had you paid in Springfield for laying as distinguished from the pipe? A. That would depend entirely upon the size of the mains.

Q. What was the price you paid for laying the different sized mains? A. I can't tell you. I don't know.

Q. Didn't you endeavor to find out when you made this estimate? A. I did not, no, sir.

Q. But you assumed it would be about the same price in Holyoke? A. Exactly.

Q. Have you laid mains recently in Springfield, so that you can remember the cost? A. I have not.

Q. Did you lay any mains in Springfield through the year 1898? A. We did.

Q. What did you pay for laying? A. I can't tell you. That is, if you will allow me, the cost of the mains is not figured out in that way. That is, the difference between the labor and the material is not of convenient access in our books.

Q. Don't you know what you were paying per foot for laying mains in the city of Springfield in 1898? A. No, sir.

Q. And did not know at the time you made this estimate? A. I did not.

Q. You made no inquiries in Holyoke? A. No, sir.



Q. There are contractors who make it a business to lay gas pipes in Holyoke? A. I don't know of any.

Q. In Springfield? A. Not in Springfield that I ever heard of.

Q. How does the city of Springfield have its pipes laid? A. Lays them itself. That is, I want to say that I am of the impression, only of the impression, that the very large and long mains in Springfield may be laid by contract. When I started that sentence I had the impression that the 36-in. main was laid by contract, and afterwards remembered that the city had laid a portion of the 24-in. main that was connected with the 36-in.

Q. How do they lay mains in West Springfield? A. I don't know, except that I was told by a man that he had made a bid for laying mains in West Springfield.

Q. In 1898? A. I believe so.

Q. Do you know what the town of West Springfield paid in 1898 for laying its pipes? A. I do not.

Q. Did you make any effort to find out? A. I did not.

Q. You conferred with Mr. Randolph about this estimate, didn't you? A. Well, I talked with Mr. Randolph about this estimate of mine.

Q. I mean the schedule that is printed? A. I conferred or talked with Mr. Randolph concerning the properties and the prices for materials, and so forth.

Q. Did you confer with him about the cost or the value of the main? A. In a general sense it came up for conversation.

Q. When did you prepare this schedule? A. It was prepared some time before the case was assigned, some time in February, at the time that adjournment was made, which you spoke of this morning. It was prepared by that time.

Q. Did you prepare it yourself? A. How do you mean?

Q. What did you have to do with it, or did anybody else have anything to do with it? A. Yes.

Q. What? A. A large portion of this schedule was prepared in connection with Mr. Prichard. That is, he and I spent two days together, working upon quantities, and materials, and machinery.

Q. Does it differ from Mr. Prichard's schedule in any particular? A. It does.

Q. In what items? A. I can't tell you the items. That is, I have not his schedule, and have not had time to compare it.

Q. It doesn't differ very much, does it? A. No, not very much.

A. In the total, I mean? A. No.

Q. When you made your schedule up, what did you understand it represented? A. The structural value of the gas plant in Holyoke, as it might have been erected by a contractor.

Q. That is, the cost to build it by contract, new? A. Yes.

Q. You did not add anything to it for engineering expenses or contingencies? A. No.

Q. Or for interest during construction? A. No.

Q. You testified this morning you thought those ought to be added? A. I did.

Q. Why didn't you put that into your schedule? A. I presume the real reason was that it had not occurred to me until the thing was brought out in the course of this hearing.

Q. When you made the schedule up, it had not occurred to you that anything should be added to what you had put down in the schedule? A. Exactly.

Q. And the adding of these allowances for engineering expenses, contingencies and interest during construction, did not occur to you until you heard some of the evidence in this case? A. Exactly.

Q. Can you fix the day when that idea first suggested itself to you? A. I cannot.

Q. Last week? A. Or week before.

Q. When did you figure out these percentages, these additional allowances? A. This morning.

Q. You did not do it until this morning? A. No, not until I was asked the question.

Q. And you didn't make up your opinion that they ought to be added until quite recently? A. No.

Q. That is, for a long time after you prepared this schedule? That is so, isn't it? A. That is so.

Q. And what is your present opinion as to the items that should be added? 5 per cent. for engineering, 5 per cent. for contingencies, and 5 per cent. for interest? A. Exactly.

Q. Anything else? A. That is one side of it. The thing we take as a fact to be regarded is that the loss must be taken in. The interest would fall away, and the loss of business would have to be figured.

Q. On that theory you take in the earnings of the plant? A. That would be the earnings of the plant which would be lost.

Q. The additional sum would be based entirely upon the supposed earnings, or possible earnings of the Company, after the time it was built? A. It would be based on what I believe to be the present earnings of the plant.

Q. Why did you fix the interest during construction at 5 per cent.? A. Simply because it is a general market rate for money.

Q. 5 per cent. per annum? A. Yes, sir.

Q. And you figured it would take a year to build this plant? A. Yes, sir.

Q. Couldn't it be built in the open part of one year? A. I have no doubt it would be possible to build it in the open part of the season of one year. It would be possible.

Q. Did you understand an engineer had ever been employed in the installation of this plant? A. I presumed an engineer had always been employed by the Company.

Q. Is that why you allowed 5 per cent. for engineering? A. I do not understand the connection of this question with my answer.

Q. Do you think 5 per cent. should be allowed for engineering expenses because the Company itself employed a gas engineer or construction engineer about the construction of this plant? A. No, sir.

Q. Supposing the company had never employed a gas engineer, never paid out a dollar for engineering services in connection with the gas plant or its installation, would you, in that event, add 5 per cent. to the cost for engineering services? A. I cannot conceive of the case, because the plant would not make gas without having such a man in their employ.

Q. Did you understand the Water Power Company had a gas engineer in its employ? A. I have always regarded Mr. Snow as a gas engineer.

Q. Then you considered the 5 per cent. as covering such services as a gentleman of Mr. Snow's qualifications would render?

A. Yes, sir.

Q. Do you know what Mr. Snow's salary is?

The CHAIRMAN. It doesn't make any difference, unless you can point out defects of engineering in the old plant, and that you cannot do through this witness.

Mr. MATTHEWS. The offer is made solely as bearing upon the present value of the existing plant. The witness has added 5 per cent. for engineering expenses, or he thinks that amount should now be added, although he did not think so at first. Now, it appears in evidence that the company never employed a gas engineer, unless Mr. Snow should be considered as such. His salary is \$2600 a year. I think the amount allowed by this expert, 5 per cent., would amount to \$16,200, a difference of \$13,600. A very considerable item. I simply want to learn why he estimated the present value at so much money, including \$16,200 for engineering services. He says it would take a year or less than a year to complete the plant.

The CHAIRMAN. Let us go on with some understanding. The work of an engineer is never visible in a plant, of course, after it is completed.

Mr. MATTHEWS. I am speaking of the amount that ought to be added for professional services. If all the company pays is \$2600 a year, it is a little difficult to see why the witness should incorporate as part of the present value of this plant a sum as large as \$16,200.

Mr. BROOKS. We say it makes no difference whatever as to what the market value is. If they are so fortunate as to have somebody in their employ, even at the low salary my friend suggests, it makes no difference whether it goes to the market value, or whether it should not be a portion of the structural value.

Q. Isn't it customary, in the installation of a gas plant, for the company to employ a manager or engineer upon a permanent salary, and have him attend to the engineering details of installation? A. So far as my experience goes, it is.

Q. Now, if that practice is followed, why should you charge up for engineering more than the salary of this gentleman during the period of construction?

The CHAIRMAN. How is that a question of market value?

Mr. MATTHEWS. I suppose he has been paid for attending to the current operation of the plant.

The CHAIRMAN. I have never heard an engineer testify but what said that 5 or 10 per cent. was a proper allowance to be added.

Mr. MATTHEWS. We do not admit that it is proper to add an expenditure for engineering services when no engineer was in fact employed.

The CHAIRMAN. Your present proposition is that the gas engineer cost \$2600 a year. Assuming that he has been an engineer for fifteen or twenty years, if you are going to make use of that, why should you not take the whole thing into consideration?

Mr. MATTHEWS. We understand he has been working there since the installation of the plant. He has been employed as a superintendent, and has been paid for his services, whereas his services during the installation period would be those of a constructing engineer. Why should the company be allowed \$16,200 for the services of a professional engineer, when as a matter of fact they had no one at all, or else had a gentleman whom they paid, during the installation period, at the outside, \$2600 a year? The witness now says it is the common practice of gas companies to employ a permanent manager or engineer, and have him attend to the engineering details of installation, and he is employed at an annual salary. The salary that is paid him during the period of construction is the engineering cost of installation, and not what they might have had to pay to an outside engineer, if they had employed him. It seems to me that it is admissible, at least in cross examination, to bring out what the facts of the case are, and what the practice of gas companies is particularly upon the point of how the witness has worked out his estimate of the present value of this plant.

Mr. BROOKS. My friend is entirely mistaken. There is no evidence that Mr. Snow was there during the construction of this plant. In fact the evidence is the other way.

Mr. MATTHEWS. There is no evidence of new construction.

Mr. BROOKS. There is no evidence from any source, and you cannot name any source. This plant was built before Mr. Snow went there, there is no evidence whether there was an engineer employed in the erection of this plant or not. Then, engineering implies more than mere supervision. It implies the drawing of the plans, the making of all the details that would go into the letting of the contract.

Mr. MATTHEWS. We understand from the testimony of Mr. Snow that this whole plant has been rebuilt since he has been connected with the company.

The CHAIRMAN. I confess I don't understand the value of this, gentlemen, but if you wish to put these questions you can.

Q. Is it not the custom of gas companies to put the original installation of a plant in charge of some professional man whom they have employed upon a permanent annual salary, to install and manage their gas works? A. I don't understand the question.

The question was read by the stenographer.

Mr. BROOKS. Answer it if you can.

A. It seems to me the question is not clear. If you mean by "installation" the works after they have been installed, that is one question. If you mean the installation as the process of installing, that is another.

Q. I meant the latter.

Mr. BROOKS. After the works are up.

A. I understand that this question starts with absolutely nothing. The works are to be built and are to be run.

Q. Yes. A. I can't tell you. I can't answer that question. I know of no instance—I am personally acquainted with no instance in which new works have been built from the bottom.

Q. You have had no experience, then, with the construction of new gas works yourself? A. Not absolutely new gas works.

Q. You have never valued any gas plant? A. Never valued any gas plant.

Q. Didn't you answer the same question a little while ago in the sense that you thought it was the custom of gas companies to put the installation and operation both in the hands of the same engineer, employed at an annual salary? A. I have not meant to answer that in that way.

Q. And your present statement is that you do not know? A. I know of no such case.

Q. Do you know any case of a gas company that had occasion to establish an entirely new plant, and employed a special engineer for that purpose, gas engineer or construction engineer, to whom was not confided the management and operation of the works when completed?

Mr. BROOKS. Is that really a fair question? He has told you he has not known of an instance of building entirely new gas works.

Mr. MATTHEWS. I intend to be perfectly fair with the witness, and I agree with you he has substantially answered the question, so I will withdraw it.

Q. If a constructing engineer is employed for the original laying out and installation of a gas plant, it is fair to assume, in your opinion, that the cost of that engineer and his subordinates, and incidental expenses connected with his work, will amount to 5 per cent? A. Yes.

Q. And that means 5 per cent. upon the cost of the original works, doesn't it? A. Yes.

Q. After the works are completed it is customary to employ a gas engineer or some other competent man to operate and manage them, isn't it? A. Yes.

Q. And is it customary to entrust to that individual the engineering services that are necessary from time to time in connection with enlargements and additions and extensions?

A. Yes. Not all of them. That is, that person of course would not, in his own self, make all the plans and that kind of thing which would be necessary, and keep the records which would be necessary in carrying on the engineering part of the business.

Q. What do you say is the practice of companies with respect to engineering services after the original gas works are built and in operation? What do you say it is? I am asking you to explain the practice in your own words. A. Ordinarily the manager of the companies of the size of Holyoke, or the superintendent of the works, is expected to do the engineering work, apart from those items which I have mentioned.

Q. What do you mean by the items which you would except from that practice? A. I mean the keeping of records and the

making of the plans, and possible surveys that might have to be made.

Q. You mean minor engineering matters? Surveying, for instance, is a minor engineering matter, isn't it? A. Exactly; if you call it so.

Q. Field work, in other words? A. Field work, yes.

Q. That would be entrusted to some one else than the manager? A. Very probably; most probably.

Q. Take the matter of street mains. They increase from year to year, and in the case of the Holyoke Water Power Company there are a great many more of them today than when the plant was built some fifty years ago. That is so, isn't it? A. I believe so.

Q. Is it customary to employ any engineering talent whatever outside that of the manager for the extension of mains? A. No, sir.

Q. And the salary of the manager is charged to operating expense? A. Yes.

Q. Going back now, Mr. Fowler ——

The CHAIRMAN. Have you left this part of it, Mr. Matthews?

Mr. MATTHEWS. I have.

By The CHAIRMAN.

Q. I want to ask the witness a question. You said 5 per cent. I didn't quite understand you. The 5 per cent. is on the original cost, isn't it? That is, if the plant today cost \$250,000, and you are the engineer, you charge \$12,500. That is the common practice, is it? A. That is what I understand to be the common practice.

Q. Everything goes into that? A. Everything goes into that; and this estimate of mine was made on the erection of a completely new plant, with the same ability to do the work as that one in Holyoke, with the same things in it.

By Mr. MATTHEWS.

Q. When you say that you would charge \$12,500 on a cost of \$250,000, you do not mean that the engineer would get 5 per cent. personally? A. No.

Q. You mean that that 5 per cent. covers his own services and those of all his subordinates? A. Yes; that is what I understood was the question asked.



Q. Yes, I thought so myself, but it wasn't quite clear. Then what you have been attempting to do in this case is to build this plant over again, new? A. Under these circumstances.

Q. And not to value it as it is? A. I valued it exactly as it is.

Q. Do you think the value of this plant as it is just what it would be to build it new today? A. Practically.

Q. Allowing absolutely nothing for depreciation? A. Absolutely nothing. The work —

Mr. BROOKS. What were you going to say?

The WITNESS. I know of nothing about that plant which is not perfectly well able to do the work there is there to do.

Q. You assume that every part of that plant is going to last forever? A. I make no assumption of that kind.

Q. What did you assume in respect to the probable life of the different parts of the plant? A. I make no assumption.

Q. None whatever? A. None whatever. I say it is there and doing its work.

Q. And how long is it going to do its work? A. I can't tell.

Q. You don't know anything about it? You can't tell? A. No, sir.

Q. Did you inquire how old the plant was? A. Parts of it.

Q. Have you any opinion as to the average age of the different parts of the plant? A. No, I have no definite opinion.

Q. Why did you inquire into the age of any parts of the plant? A. Did I say I inquired into the age?

Q. I understood you to say so; perhaps I misunderstood you. A. I may have said it, but the age of certain parts of that plant has been told to me. I don't know that I did inquire into the age of any part of the plant.

Q. But you heard accidentally how old some parts of the plant were? A. Yes.

Q. You made no inquiry to find out the age of the rest? A. No.

Q. And you paid no attention to the age of those parts in respect to which the age was given you? A. No.

Q. In other words, you assumed that a gas plant which has been in existence for twenty-five years, we will say, is just as

good and worth just as much money as the day it was built?

A. If it is doing its work properly and is in good condition.

Q. Yes. How long in your experience will a steam boiler last? A. I have no experience that would be any guide.

Q. How long will the retorts last in a coal gas plant? A. Oh, two or three years.

Q. You charge the cost of rebuilding them to current expenses, I suppose? A. Current expenses.

Q. But there is some part of those benches which you do not charge to current expense, isn't there? A. The benches are maintained in proper shape from year to year, all of which goes to current expense.

Q. They do not renew the iron part of them, do they—the iron retorts? A. No.

Q. Those are not renewed every two or three years, are they? A. No.

Q. They don't wear out as often as that? A. No.

Q. How long will they last, would you say, on the average? A. In my own personal experience, out of 72 mouthpieces bought in 1886, parts of two have had to be renewed.

Q. What would you say was the average normal life of the iron part of the retorts? A. Considered as a whole, I should say that forty years was an average life, probably.

Q. That is to say, if good care is taken of them and they are kept in as good condition as a manager reasonably can, that nevertheless at the end of forty years they will be in such condition that you would have to throw them away? A. That expense is kept as a part of the manufacturing expense; that is, the mouthpieces, when renewed, are put into the repairs, and it is a part of the manufacturing expense.

Q. Now take the water gas plant. That will wear out sometime, won't it? A. I don't know. It seems to me it must.

Q. What would you assign as the average or normal life for that? A. I haven't any kind of an impression about it.

Q. You have not allowed anything, or made any deduction from your estimate, on account of any term of life for any of this machinery, have you? A. No, I have not.

Q. That is, you valued this plant as a whole and in all its parts just as if it was going to last forever, haven't you? A. Ex-

actly. Or I think it is a mistake for me to say that I had valued that plant as if it would last forever. I have valued it as if it had the life of other manufacturing plants, and was subject to certain repairs; it must be kept good by repairs.

Q. But you have assumed, and you have valued this plant upon the theory, that if that is kept in proper repair and given as good attention as could reasonably be expected, it will last indefinitely? A. It will last indefinitely.

Q. Just before the recess for lunch you were stating how you had reached this valuation of \$900,000. Will you explain the process by which you reached that figure? A. Thank you. The question asked me I supposed to be——

Q. By whom? By Mr. Brooks or by me? A. By Mr. Brooks. I supposed it to be that, given the condition of the opportunity of present business of \$46,000 profit per year, what would you say that the value of that business was. To which I answered that, if it be capitalized at 5 per cent, the value of that business would be \$910,000, more or less.

Q. That was rather a calculation of yours than an opinion, then? A. Certainly, a calculation.

Q. And if I understood you as having expressed an opinion of the present value of this plant as \$900,000, I misunderstood you? A. Yes, sir.

Q. You have expressed no such opinion? A. I have not meant to express any such opinion.

Q. And you have given no valuation to this plant except the one which appears upon your typewritten schedule, \$324,297, with the additions for engineering, contingencies and interest during construction? A. That is the valuation that I have placed upon the physical part of the plant.

Q. Is that the only valuation that you have placed upon this plant? Or, rather, have you placed any other valuation upon this plant than that? A. No.

Q. And you do not give any other value to this plant than that? A. Well, I have had as yet no chance.

Q. You have not done so? A. I have not done so.

Q. In the calculation that you made, in answer to Mr. Brooks' inquiry, you assumed net earnings of how much? \$46,000? A. \$46,000 approximately, wasn't it?

Q. And you assumed that that amount should be capitalized at 5 per cent? A. Yes.

Q. And that is the way you got your \$900,000? A. Yes.

Q. \$920,000, wasn't it? A. I have forgotten.

Q. Yes; you were asked to assume that the net earnings of the company were, or would be, \$46,000. Did you go into the question of what the net earnings of the company were? A. I beg pardon. I was requested, I believe, to assume that the net earnings of the company were \$33,000 today.

Q. Yes. Then how do you get the net earnings from \$33,000 up to \$46,000? A. On account of the increase which I believe to be possible in Holyoke in net earnings.

Q. The difference between \$33,000 and \$46,000 was your assumption? A. Exactly.

Q. Now, in regard to the present earnings of \$33,600, did you work that result out yourself? A. I did not.

Q. Do you know what the company is earning, or have you investigated? A. I do not. I have not investigated it at all.

Q. That is, you have no knowledge, information or opinion concerning the net earnings of the company?

Mr. BROOKS. Excuse me; does he say he has no opinion? I understood him to say that he did not know what they were.

Mr. MATTHEWS. I understood him to say that he assumed this; I don't know whether you would call that information or not.

The WITNESS. I have not made an examination of the books. Yes, sir.

Q. Then you have no personal knowledge or opinion? A. No personal knowledge.

Q. Or opinion, have you? A. I have an opinion.

Q. Based on any examination of the actual earnings of the company? A. I have no opinion based on any personal examination to my knowledge.

Q. But the increase from \$33,600 to \$46,000 was made by you upon your assumption of the net earnings that this company might enjoy? A. That was made on my opinion of the business that ought to be done in a city the size of Holyoke.

Q. Not upon the business it is doing now, but what it might do? A. What it might do now.

Q. What it might do now? A. Yes, sir, but what it is not doing.

Q. Then where did you get the 5 per cent? Were you asked to assume that as a figure, or are you responsible for that?

A. Yes, I am responsible for that.

Q. You are responsible for the 5 per cent? A. Yes, sir.

Q. Now, upon what theory did you select 5 per cent. as a fair rate at which to capitalize the net earnings of the company?

A. Because, so far as my information goes, stocks paying 5 per cent. at par are desirable stocks.

Q. Stocks of Massachusetts gas companies? A. Stocks of Massachusetts gas companies.

Mr. BROOKS. He did not say that he confined it to gas companies, did he?

Q. Did you confine it to gas companies? A. I did not confine it to gas companies, but I should perhaps have excluded certain other companies.

Q. I don't know what you mean. A. I mean that there are certain classes of manufacturing companies where the earnings depend entirely on the personal character of the management, where perhaps a 5 per cent. stock would not command par.

Q. You mean then, in substance, that you think that the property of a corporation which is paying out \$5000 in dividends is worth \$100,000? A. At least. It ought,—well, when those profits are based on the property of the corporation.

Q. Based on the property of the corporation to what extent? A. I cannot go into that question so quickly and thoroughly.

Q. Just go into it, if you can, to the extent of explaining your answer, because I don't understand it.

The CHAIRMAN. I wish you would, Mr. Witness.

The WITNESS. I beg your pardon.

The CHAIRMAN. Do you understand the question?

The WITNESS. Yes, sir. Mr. Matthews says if a company is paying out \$5000 in dividends that the stock of the company ought to be worth one hundred thousand dollars.

Q. I ask you if that is a fair illustration of the theory according to which you selected this 5 per cent? A. It is not a fair illustration of the theory, unless those earnings be based upon property which the company owns.

Q. You mean structural value? A. Hardly structural value alone.

Q. What sort of property besides structural value? A. A business itself, a concern going is worth money—worth much more than the mere structural value.

Q. Well, to adhere to my illustration, you say that if a corporation, a gas company, is paying out \$5000 a year in dividends the property of that company is worth \$100,000, providing I understood you to say, it had property? A. Yes, and business.

Q. Property and business? A. Yes, sir.

Q. Now, to what extent must it have property, actual, physical, tangible property, in order to make that property worth \$100,000? A. I don't know.

Q. You don't know? A. No, sir.

Q. Then, on what theory did you take this 5 per cent.? A. The proportion between the value of the physical plant of a company and any other value that may adhere to the stock makes, so far as I can see, no,—it makes a certain difference within certain lines, but I cannot see that it makes a definite difference in the value of the stock. I do not see how one can draw a hard and fast line.

Q. That difference in the value, as you call it, above the structural value of the tangible property is due to the earnings of the company, is it not? A. Due to the earnings of the company.

Q. And its business? A. And its business.

Q. And its franchises, if it has any? A. Its franchises, if it has any.

Q. Its good will? A. Its good will.

Q. And the skill with which the company is managed, is it not? A. Yes.

Q. And also other considerations? A. Yes.

Q. I understand you to say that the 5 per cent. was taken because you thought that that was a fair rate at which the stock of a gas company should be sold in the market? A. Yes.

Q. In a place about the size of Holyoke, I suppose? A. Yes.

Q. And that stock—the value of that stock would depend, in great measure at least, upon the actual dividends paid, would it not, from year to year? A. Yes, sir.

Q. Now, do you think that the gas company can pay out all its net earnings above its operating expenses in dividends?

Mr. BROOKS. That I object to.

The CHAIRMAN. (To the stenographer) Will you read it?

(The question was read by the stenographer as follows: "Now, do you think that the gas company can pay out all its net earnings above its operating expenses in dividends?")

Mr. BROOKS. We say whether a gas company can or not makes no difference. Take the conditions that exist.

The CHAIRMAN. Well, we understand he is being examined as an expert.

Mr. BROOKS. Is that question admitted?

The CHAIRMAN. Admitted, yes.

Mr. BROOKS. Note an exception, please.

Mr. MATTHEWS. Will you read that question again?

(Question read.)

A. No.

Q. That is, you don't think that if a gas company can show 40 per cent. net above operating expenses, that is, 40 per cent. of its gross income, that it can afford as a business concern and a prudently managed concern to pay it out in dividends?

Mr. BROOKS. That I would like to go in subject to my exception.

The CHAIRMAN. It is admitted, Mr. Matthews.

A. No.

Q. What percentage of the net earnings of a gas company, a well managed and prudently managed gas company, do you think can safely be paid out in dividends?

Mr. BROOKS. Now, I desire to suggest again,—I don't know but this is tiresome,—that it is all collateral,—it is running into collateral issues. It may involve an inquiry into all the ramifications of the various gas companies, and if it is admitted, I would like to save my exception. I will not intrude again by an exception, but I would like to save a general exception to this line of evidence.

Q. Now, will you answer, Mr. Witness? A. That depends entirely on local conditions.

Q. What do you mean by "local conditions"? A. I mean that if through any cause a company should become impover-

ished, it should—it would probably be desirable to put itself in a strong financial condition before paying any dividends at all.

Q. And in that case I suppose that for a series of years they would have to go very slow on dividends? A. There might be such a possibility.

Q. Now, my question had reference to the ordinary, normal case of a well and prudently managed gas company; what proportion of the net earnings above the operating expenses could safely be paid out in dividends in your opinion? A. In the neighborhood of 30 per cent. would be where I should put the average,—no—

Mr. BROOKS. 30 per cent. of what?

The WITNESS. 30 per cent. of the 40,—3-4 of the 75—

Mr. BROOKS. What?

The WITNESS. 75 per cent.

Q. 75 per cent. of the 40 per cent.? A. Yes.

Q. By 40 per cent. you mean the net profits? A. Yes.

Q. You assume the gas company, prudently managed, can net earnings of 40 per cent. of its income from sales? A. From gas.

Q. Of gas; and you think that such a company can safely pay out in dividends 75 per cent. of that 40? A. Yes.

Q. That would make 30 per cent. of the income from sales, would it not? A. Yes.

Mr. COTTER. Mr. Witness, you ought to speak; the stenographer does not see you when you nod your head.

The WITNESS. Yes.

Q. Then if a gas company, ordinarily managed with reasonable and prudent care and not burdened with any special financial difficulties, can earn \$33,000 a year net, you would say that it could safely pay out in dividends three-quarters of that amount? A. I should.

Q. And then you say, if I understand you correctly, that the stock of such a company ought to sell on a 5 per cent. basis, predicated upon that amount of dividends? A. I believe that stock would sell higher than that.

Q. If you believe it would sell higher than that, why did you take 5 per cent.,—you mean a higher basis than that? A. No,—what do you mean? I think the par would be on a dividend of say 4 or 4 1-2.



Q. Why did you take 5 per cent., then, as a fair basis for capitalization? A. Because I knew that 5 per cent. would sell for par.

Q. You thought that and took that, didn't you, because as a prudent witness you thought that was a safe and conservative figure? A. Very conservative, inside figure.

Q. And then to carry out your theory you would answer the question that I just put in the affirmative, would you not? A. Yes.

Q. That if a gas company is earning \$33,000, it can safely pay out three-quarters of that in dividends? That is so, is it not? A. Yes.

Q. And that the value—the aggregate value of the company's stock will represent that amount paid out in dividends capitalized at 5 per cent.? That is so, is it not? A. As you have worded it, yes.

Q. Well, would you change the wording any? A. I should like to make a suggestion.

Q. I am perfectly willing to have you make any suggestion you want. A. Which is that the possibilities are not exhausted. I believe that today in this present case we have under consideration that the total earnings can be paid out, that is, on account of the unused opportunities of business.

Q. But if it were not for those unused opportunities which you think you see, then my statement of your theory is absolutely correct? A. Your statement of the theory is correct.

Q. That is, the statement made a moment ago? A. Yes.

Q. On the basis of the earnings actually made today? A. Yes sir.

Q. Now, your present suggestion is to modify that application of your theory by taking into account the unused earning capacity of the company, is it not? A. Yes, sir.

Q. Based upon your opinion that more gas could be sold and more profits made by the company than are being realized today? A. Yes, sir.

Q. That must have to be done in the future, must it not? That opportunity is not used, is it? A. That opportunity is not used, no.

Q. That opportunity exists, but no use is made of it? A. No use made of it.

Q. And before you could realize any value or use from the opportunity it would be some time in the future, would it not? A. It would.

Q. How long did you say that you had been manager of the Springfield Gas Light Company? A. Nine years.

Q. And of another gas company before that? A. Yes, for two years.

Q. What is the practice of your present company with respect to depreciation?

Mr. BROOKS. What is that? Let me have that over again.

Mr. MATTHEWS. What is the practice of his present company, the Springfield Gas Light Company, with reference to annual allowances or charges for depreciation?

Mr. BROOKS. I would like to save an exception to that.

Mr. COTTER. Do you object, first?

Mr. BROOKS. Yes, certainly I do.

Mr. COTTER. Well, it is excluded.

Mr. MATTHEWS. I would like to except.

Mr. COTTER. Very well.

Q. Are you familiar with the practices of Massachusetts gas companies with regard to depreciation? A. Not especially.

Q. Have you ever studied the subject at all? A. I have some.

Q. Do you know what the average percentage of gross income allowed or charged by Massachusetts gas companies on account of depreciation is? A. I do not.

Q. And have you ever made any attempt to inquire or find out? A. I have not.

Q. What percentage of its net annual profits does the Springfield Gas Light Company make a practice to pay out?

Mr. BROOKS. That I object to.

Mr. COTTER. Excluded.

Mr. MATTHEWS. I except. I would like to raise the question whether a witness can qualify as an expert based upon his experience as a manager of a gas company, and then testify to value reached by capitalizing dividends and not be asked on cross examination what his experience—about his individual experience in that particular.

Mr. COTTER. The question about the method of a particular company we think would be incompetent.

Mr. MATTHEWS. That might be so, we think, as to some other company, but can it be so as to the company, his connection with which is the basis of his qualification as an expert?

Mr. COTTER. My individual view,—I do not think there is any difference between us,—is that this is clearly incompetent.

Mr. MATTHEWS. Then let us take Massachusetts gas companies as a whole.

Mr. COTTER. We are dealing with the question which you put.

Mr. MATTHEWS. The last question was, Massachusetts gas companies, I think that was excluded,—I am mistaken; the witness said he did not know. I beg the Commission's pardon.

Mr. COTTER. I referred to a particular company. I say, as I understand, the Commission would only deal with questions as they arise.

Q. You conferred, you said, with Mr. Prichard in this case on several occasions? A. I have talked with him often, yes.

Q. Have you had any conference with him relating to a table relating to 25 Massachusetts cities? A. I have not.

Q. Which he produced in evidence? A. I have not.

Q. You have not? A. No.

Q. Do you know what the allowances or charges made for depreciation by the 25 companies in that table are? A. I do not.

Q. Have you inquired into what it costs this company to manufacture gas in the holder? A. I have not.

Q. Have you an opinion as to what the cost should be? A. No, no. That thing in a place of the size of Holyoke depends very much on where the wages are put—

Mr. BROOKS. Where the wages are what?

The WITNESS. Are put, that is, where they are charged up. You mean, delivered out of the holder?

Q. I mean the cost, what is commonly called the cost in the holder. Figured on output. A. I do not; I have not inquired at all about it.

Q. My present question is whether you have any opinion as to what that cost should be? A. I have not.

Q. You mean to say that you have not any opinion as to what it ought to cost a gas company to manufacture gas in the

holder, or that you have not any opinion as applied to a place the size of Holyoke? A. I would say that I have not—that point of division of the price of gas has never appealed to me, and I have taken no interest in it. I have reckoned it out sometimes in my own case, but it is, so far as I am concerned, only with the total cost—only the total cost interests me at all.

Q. Have you an opinion at all,—you mean at the burner?

A. Yes, I mean at the burner.

Q. What should the total cost at the burner be in cents per thousand feet sold?

Mr. COTTER. Does he say he has an opinion?

Mr. MATTHEWS. He has not answered the question; I do not know, sir.

A. Yes, I have an opinion about it, that the cost should be between 70 and 80 cents.

Q. In a company or city of what size? A. Why, in Holyoke.

Q. In Holyoke? In a company doing the business that the Holyoke Water Power Company are doing in a city the size of Holyoke, the cost should be between 70 and 80 cents? A. Yes, the conditions being as they have been lately.

Q. You say that six cents per thousand is enough to allow for current repairs and renewals at a gas works both at the works and on the distribution system? A. I believe that to be sufficient.

Q. Upon what is that belief founded? A. That belief was founded on the report of the Gas Commissioners, you know, where they made their average, which amounts to 6.6, and upon,—well, that is practically all it was founded on.

Q. What part of the report of the Gas Commission do you refer to (handing copy of the report to the witness)?

Mr. COTTER. And of what year?

The WITNESS. This last year, January, 1899.

Q. Just refer to the page so that you can answer it. A. Page 118.

Q. You say that you made a calculation from the statistics given on page 118 of the Annual Report of the Board of Gas and Electric Light Commissioners for January, 1899, and that calculation showed an average expenditure of six cents per thousand? A. Approximately six cents.

Q. Approximately six cents per thousand sold for current repairs and renewals? A. Yes, sir.

Q. Both at the works and on the distribution system? A. Yes, sir.

Q. Have you the details of that calculation with you? A. I have not.

Q. I see upon page 118, to which you have referred, an itemized list of aggregate expenditures, but I do not see upon that page any figure representing the aggregate amount of gas sold; you must have got that figure from some other part of the Report? A. The price of gas is stated on the next page but one,—120, is it not—to be \$1.14 per thousand?

Q. Just explain that, will you? A. The price is stated, I believe, on some page at \$1.14. Sold, gas to the amount of \$5,669,000, or approximate figures, which would make about five thousand millions sold, and that divided, that gives about six cents,—when the repairs and renewals are divided, according to my recollection.

Q. You have not the calculation with you, have you? A. No, I have not.

Q. Which items on page 118 did you take out as indicating the expenditures for repairs and renewals? The items are numbered, if you will call them off? A. No. 9 and No. 6.

Q. No. 6 and No. 9? A. Yes, sir.

Q. You did not include Nos. 10, 11 and 12? A. No.

Q. Aren't they part of the repairs and renewal of the distribution? A. No, not as I take it, though they might be so construed.

Q. As a matter of fact you only take items numbered 6 and 9? A. That is all.

Q. And did not take in 10, 11 and 12? A. No, I did not,—the repairs and renewals of meters.

Q. Now, you got your price of gas, \$1.14, from page 130, didn't you? A. Yes.

Q. And what do you find there stated to be the average price? A. "The average received by all is \$1.14 per thousand." "The average price received by the remainder of the coal gas companies from sales by meter is \$1.71, the average received by all is \$1.14 per thousand."

Mr. COTTER. Will you read that over again? What does he say is the average price?

Q. Give that please. Read it over. A. "The average price received by the remainder of the coal gas companies from sales by meter is \$1.71, the average received by all is \$1.14 per thousand."

The CHAIRMAN. I don't understand that; what do you mean?

Mr. MATTHEWS. What does it mean?

The CHAIRMAN. Perhaps I did not hear you; what does it mean?

The WITNESS. It means that the average consumer in the State of Massachusetts paid \$1.14 a thousand feet for gas.

Mr. BROOKS. Both coal and water?

Mr. MATTHEWS. Anything whatever that was, except oil.

The CHAIRMAN. What is that \$1.71?

Mr. MATTHEWS. That refers to the gas companies except the Boston ones, I think, leaving out the large companies.

The CHAIRMAN. Oh, yes.

Mr. MATTHEWS. The \$1.14 is the average price.

Mr. BROOKS. Leaving out Boston it is \$1.71,—outside of Boston.

Mr. MATTHEWS. That is not it, is it?

Mr. BROOKS. Well—

Q. Suppose you explain it? I didn't read it. A. "The average price paid by consumers for coal gas to the companies selling annually more than 30,000,000 feet each is \$1.09 per thousand feet. If the Boston and Brookline companies be excluded the average is \$1.16. The average price received by the remainder of the coal gas companies from sales by meter is \$1.71, the average received by all is \$1.14 per thousand."

Q. And what is meant by the average of the remainder to be \$1.71 is those that sell less than 30,000,000 feet a year? A. That is it.

Q. If you will just explain how you get the expenditures represented by items 6 and 9 on page 118, reduced to the number of cents per thousand? A. The total receipts for gas were something over \$5,000,000. Divided by \$1.14 that gives approximately 5,000,000,000 feet of gas.

Q. You used that factor? A. I used that as a divisor, and

divided those sums expended for repairs by using a quotient of 6 cents, approximately.

Q. You said while you were at Westfield the plant was rebuilt? A. No, it was rebuilt after I left Westfield, while I was in Springfield.

Q. To what extent was it rebuilt? A. The benches were built over, the retort house was rebuilt, and practically a new exhauster put in, new purifiers, a station meter, tar wells, and a holder.

Q. Have the works been rebuilt at Springfield since you have been connected with the company? A. That part of the works between the retorts and the station meter, with the exception of a very small fragment, have been renewed, built over new.

Q. Buildings rebuilt? A. Two buildings were built new and one old one was utilized. Also a water gas plant was put in.

#### RE-DIRECT.

By Mr. BROOKS.

Q. Mr. Fowler, take this Holyoke plant as you find it, and make your examinations and your estimates, assume that they are spending upon that plant for current repairs and renewals 11 cents per one thousand feet of gas manufactured, with that assumption is there any reason why they should not distribute their earnings to the stockholders, \$33,600? A. If that be a fixed amount of earnings, at \$33,600, it seems to me that they cannot distribute the whole of that money.

Q. Why? A. Because some of it would be needed for extensions.

Q. How much of that extra 5 per cent. per thousand feet do you suppose goes into extensions? A. I suppose that practically it all goes into extensions.

Q. Practically all goes into extension. Well, on that assumption, is there any reason why the \$33,000 should not be distributed to the stockholders? A. That would diminish the amount which would be retained.

Q. If a certain amount is to be retained for extension, that becomes capital? A. It does.

Q. Well, take this plant, then, as you see it, remembering the

amount that is expended in current renewals and repairs, and this plant earns \$33,600 a year net, what do you say is the fair value of that plant? A. I say, under the circumstances of this plant, that \$33,000 could be divided on the opportunities which the company now has for doing business.

Q. Then what would you say would be the fair value of this plant? A. Those earnings capitalized at 5 per cent. The fair value would be \$660,000.

Q. Well, Mr. Fowler, taking this plant as you see it, with the amount expended per thousand feet of gas that has been mentioned, in what would a new plant exceed the life of this plant? I will change my question. Taking this plant as you see it, whether or not a new plant would be longer-lived than this plant, as you find it, in your opinion? A. I believe this plant to be thoroughly well constructed——

Mr. GREEN. That is not answering the question.

The WITNESS. And I know of no reason why the life of this plant should not be as great as the life of any plant, as the life of a new plant.

Q. What do you mean by that? Does that include a new plant? A. Any new plant.

Q. My friend has asked you with reference to the quantities. Before the estimate was made by you, did you go over the plans of the Gas Company? A. I did.

Q. And where you took Mr. Walther's estimates and quantities, did you yourself make estimates from the plans? A. I made some estimates from the plans.

Q. My friend has asked you about conferences with some of the other witnesses in the case. How much did those conferences affect your estimates of quantities or facts, or anything else? A. I don't know that they affected them at all. There was considerable difference in the way of figuring certain things, and the only real difference that it made to me was in my estimate of the mains, and my way of figuring the value of the mains.

Q. Did anything that took place at any of the so-called conferences enlarge or diminish your valuations? A. No.

Q. What were these conferences, so called? A. They were meetings of the witnesses engaged in this case.

Q. Was anybody else there, any counsel there? A. And the counsel whom we were called upon to instruct.



Q. Whether or not you were asked questions by the counsel? A. Yes, sir.

Q. And you made replies? A. We made replies.

Q. Is that what you mean by conferences? A. Exactly.

Q. Are the figures which you have given here in your testimony the result of your judgment or somebody else's? A. The result of my judgment.

Q. My friend asked you if you remembered the price it cost you in Springfield to lay pipes, and I understood you to say you did not. A. I did not.

Q. How did you determine the cost of the pipe as laid in Holyoke? A. By taking the total cost of a pipe laid in Springfield, and putting the same value on it in Holyoke, laid.

Q. That is, the value of your pipe was not separate from the cost of laying? A. Exactly; it was not.

# RE-CROSS.

By Mr. MATTHEWS.

Q. Do you know of any instances in which small gas mains have been removed by the gas company?

Mr. BROOKS. That I object to. If it is confined to this company I do not object.

Mr. MATTHEWS. He doesn't know anything about this company.

The CHAIRMAN. The question may be asked.

Mr. BROOKS. Then I would like to except.

The WITNESS. I do not.

Mr. BROOKS. Then I will withdraw the exception.

Q. Have you had any such experience in Westfield or Springfield? A. I was wrong. I do know of one instance.

Mr. MATTHEWS. Then I suppose you renew your objection.

Mr. BROOKS. I do. I renew it with fervor.

Q. Well, what was the case? A. It was a case in Springfield, where, in view of future growth, and the fact that the street was not macadamized, but soon would be, I took out some 2-in. pipe and put in 6-in. in its place.

Q. You said your valuation of the mains was somewhat

affected by the conference you had with the other gentlemen?  
A. The way of making the valuation.

Q. Will you explain the manner in which your mode of valuation was affected by that conference? A. The cost of the pipe and the expense of putting it into the ground I had originally attempted to divide, so as to get each size of mains along with the proper cost of laying, that is, the cost of laying each size, but I found I could not work that out satisfactorily to myself. I could not find out what the cost of laying each individual size would be. And the details of the specials were another point.

Q. After you had made up your mind that you could not work out the value of the mains by taking the cost of the pipe and the laying separately? A. And the specials.

Q. Because, as I understand it, you could not get satisfactory figures about the laying. Did you make any effort to see what contractors in Holyoke were charging, or in the immediate vicinity of Holyoke were charging, for laying gas or water pipes? A. I did not.

Q. Why didn't you do that? A. Because I have never had any experience, or heard of any gas pipe being laid by contract, with one exception, and that I had always understood that exception to have been so disastrous that it did not even occur to me to ask what it could be laid for.

Q. Do you know that water pipe is laid on contract? A. I have stated all my information about that.

Q. And you did not inquire of the Holyoke Water Power Company what they were paying for laying their own pipe? A. I did not.

Q. Why didn't you do that? A. That didn't occur to me, either.

Q. I understood you to say in reply to Mr. Brooks on re-direct that you thought the fair value of this property was \$660,000. A. Yes, sir.

Q. That you wish to have understood as your opinion? A. I do wish that to be understood as my opinion.

Q. Of the value of this gas plant? A. Yes, sir.

Q. And that opinion is based, I understand, upon its present earnings, and the present opportunities for future increase of business? A. Yes, sir.

Q. That assumes, I suppose, that the present earnings will

not be diminished in the future? A. It assumes that they will be increased, on account of the present opportunity.

Q. You assume an increase of future earning capacity on account of its present unutilized opportunity? A. Yes, sir.

Q. And you assume that whatever rights, if any, the Company has in the public streets will continue to be enjoyed by the Company as at present? A. I do.

Q. You assume that there will be the same absence of competition? A. I do.

Q. In the future as there is at present? A. I do.

Q. And, generally speaking, you assume that all the existing conditions surrounding the operation of this business are to continue, except that there is to be an increase of business? A. Except that the business is to be increased.

Q. My last statement was a fair one, wasn't it? A. Yes, sir.

Q. And do you assume that the company will be able to maintain the present prices? A. They should maintain them for a certain length of time, judging by the price at which other companies of the same size are now selling gas.

Q. Where did you get the information upon which you formed that judgment? A. From the reports which give us the price at which companies are selling gas.

Q. The annual reports of the gas commission? A. The annual reports of the gas commission, and from what I am told by friends of mine in the business.

Q. What percentage of increase of the present earnings, due to the utilization of the opportunities for growth, now unused, do you assume, in order to reach your value of \$660,000? A. It would be 33 per cent. increase in earning.

Q. Net or gross? A. In the net earning.

Q. You assume that the net earnings must increase 33 per cent. in order to get your value of \$660,000? A. Yes, sir.

Q. Is that right? A. I say that the possibility gives a value of \$660,000.

Q. How much value is due to the possibility? That is what I am trying to get at. A. That would be about, on the capitalization of the income, it would be about one-fourth of the value.

Q. One-fourth of the \$660,000? A. Yes.

Q. Wouldn't it be a third of it? A. No, sir.

Q. On your statement of interest? A. No, sir.

Q. I thought you stated you assumed an increase of net earnings? A. Yes, sir.

Q. Yes, you are right, it would be a quarter. One-fourth of \$660,000 is \$165,000, isn't it? A. Yes, it would be \$165,000.

Q. And that would leave, if you deduct that from the \$660,000, \$495,000? A. Yes.

Q. And that would be the value of this property, based on earnings, without taking into account the unused possibilities?

A. That is what I value it.

The CHAIRMAN. We were engaged in conversation, and did not understand the last few questions and answers.

Mr. MATTHEWS. The witness had stated on re-direct that he had valued this property based on earnings at \$660,000, including, however, the present existing opportunity for increase in the consumption of gas, and the net earnings of the company; that is, including the opportunity which he thought existed, but which had not been utilized by the company. Upon my asking him how much of that \$660,000 depended upon this unused opportunity, he fixed the amount at \$165,000, which would leave \$495,000, which this witness places as the fair market value of this gas plant, based on the present earnings, regardless of the unused opportunity for development, assuming also the present net earnings to be \$33,000. Did I state that fairly, Mr. Brooks?

Mr. BROOKS. Most assuredly. You couldn't fail to state it fairly, Mr. Matthews.

Mr. MATTHEWS. Thank you, sir.

#### RE-DIRECT.

By Mr. BROOKS.

Q. At 5 per cent. what does \$33,600, capitalized at 5 per cent. amount to? A. It would be \$672,000.

Q. In order that there may be no misunderstanding, assuming that this plant has been running for some years, as good as new, with a business established, which brings in regularly \$33,600 a year, leaving out the question of present opportunities for growth entirely, what should you say was the value of the plant? I don't care whether the earnings are distributed in dividends, or not. What is the value of that plant?

Mr. MATTHEWS. It seems to me the witness has already answered that question on re-direct.

Q. I will put my question once more. Leaving out of consideration any distribution of dividends, assuming that the plant is in good condition, just as good as new, after some years of business which has been established, with an income of \$33,600 per annum, what do you say is a fair market value of that plant?

A. I think the value is worth 5 per cent. of the income.

Q. You mean by that the income capitalized at 5 per cent?

A. The income capitalized at 5 per cent.

### RE-CROSS.

By Mr. MATTHEWS.

Q. Didn't you say a moment ago that the valuation was \$660,000? A. Yes, sir.

Q. That, then, is what you assume to be the present fair market value of this property? A. Yes, sir.

Q. Taking into account the unutilized opportunity for development? A. Yes. I do not think the two things work against each other, as Mr. Brooks has stated the problem. He has said that the income is so much, and there is the statement presented to me that a certain percentage of the difference between the expenses and income on the manufacturing sheet goes for extensions. And an extension brings in further money. I don't consider the thing, if the extensions are not provided for outside of income, to be worth 5 per cent. of the difference in the manufacturing cost.

By Mr. BROOKS.

Q. Where do your extensions go, into income or into capital? A. They become the property of the company.

Q. They go into the capital? A. They go into the capital.

Q. Then, if you take it from the income and put it into the capital, what effect does that have upon the value of the company, upon the value of the plant? A. It increases the value of the plant.

By Mr. MATTHEWS.

Q. You think that ought to be done in a prudently managed gas company? A. I do.

## DOCUMENTARY EVIDENCE.

Mr. BROOKS. I do not think, may it please your Honors, that unless we are compelled to, we will put on another individual witness this afternoon, but I have here the form of lease which we purpose to submit, and I thought perhaps it might as well be put in at the present time.

Mr. COTTER. Has Mr. Matthews seen it?

Mr. BROOKS. Oh, yes, both counsel have had it for some time.

Mr. MATTHEWS. Have you given us a copy of it?

Mr. BROOKS. We have not given you any copy of it; you have had it a couple of days. We will put it in evidence.

Mr. COTTER. Any objection to this lease, Mr. Matthews?

Mr. MATTHEWS. No, I understand that is offered as the form that the Company proposes to give us.

Mr. COTTER. Yes.

Mr. GREEN. We may object to the lease itself.

Mr. BROOKS. I don't know what that means, but this form——

Mr. COTTER. They wish to put this in evidence now.

Mr. BROOKS. If your objection is now——

Mr. GREEN. Oh, no, we don't want to get angry so late in the day.

Mr. BROOKS. I thought you were objecting to the admission of it.

Mr. GREEN. No.

Mr. BROOKS. I do not want to put it in if it is objected to.

The CHAIRMAN. Put it in; we will listen to it.

Mr. Brooks began to read the form of lease.

Mr. COTTER. Mr. Brooks, will it be necessary to read that if it is to go into the record or go in as an exhibit?

Mr. BROOKS. As your Honors see fit. I did not know but possibly at some time the Commission might desire to make some inquiry as to the meaning of various articles here. There are many and they are long.

Mr. COTTER. Select your own course.

Mr. BROOKS. I will read it entire.

The CHAIRMAN. It will be printed.

Mr. COTTER. I suppose it will be printed.

Mr. BROOKS. Then I am perfectly willing to let it go in without reading.

Mr. GOULDING. I understand that the respondents make some important and serious objections to the offer that is made and claim that their rights are involved in a very serious way, and at some time the contents of this lease, voluminous as it is, will have to appear before this commission before the argument. It will have to be read, I suppose, in open court some time, I don't know when.

Mr. COTTER. We do not want to interfere.

Mr. GOULDING. It seems to me it will have to be read in open court some time, be read from the printed copy hereafter, or read now.

Mr. COTTER. Select your own course.

Mr. GREEN. We are willing it should be offered with all the effect of having been read, so far as that is concerned.

Mr. BROOKS. I will be guided by the Commissioners. I am not very anxious to read it.

Mr. COTTER. We do not wish to direct; use your own judgment in regard to it.

Mr. BROOKS. I think myself it ought to be read.

Mr. COTTER. Read it.

The CHAIRMAN. You are a good reader.

Mr. BROOKS. I am obliged to your Honors for the compliment.

Mr. GOULDING. It is very good as an exercise in elocution; we do not want to read it for practice, however.

Mr. Brooks resumed the reading of the lease, and having finished the preliminary parts said: "I will omit the description of the land, which, as I understand, is substantially the same as heretofore stated."

Mr. MATTHEWS. That is, you give us the same boundaries that you note in the schedule filed with the city?

Mr. BROOKS. Yes, I think so.

• Mr. MATTHEWS. And as shown on the plan?

Mr. BROOKS. I think so, substantially. If those are not enough the Commission can make us give more.

**The form of lease is as follows:**

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such other officer or agent of the grantor as may have the matter in charge, there is sufficient water flowing in the Connecticut River per second to permit such use in excess of the sum of the four quantities named hereafter, viz :—

1.— The quantity of water per second needed to supply the lawful demands of all persons or corporations now having the right to use said water from the said Upper Level Canal (including those drawing from the South Hadley Canal) heretofore made or granted by said Holyoke Water Power Company or those under whom it claims, and now on record in the Hampden or Hampshire County Registry of Deeds.

2.— The quantity of water per second needed to supply the water powers heretofore appropriated by the grantor for its own use and the use of its tenants, and its and their successors and assigns on the Upper Level, being a quantity of water per second which would constitute seventeen mill-powers on that Level if used every working day in the year.

3.— The quantity of water per second which may be needed to supply the lawful demands of all persons or corporations now having the right or agreements for rights to use said water from the second or third levels, heretofore made or granted by said Holyoke Water Power Company, or those under whom it claims, which may be in excess at any time of the quantities supplied to said lower levels by the mills in operation on said Upper Level.

4.— The quantity of water per second equal to fifty per centum. of the sum of the three quantities already named as granted or appropriated.

A non-permanent 24 hour mill-power, as conveyed hereby being the right to take from the grantors said canal during the 24 hours of the day, but excluding Sunday and legal holidays, the same quantity of water per second that might be drawn per second under a grant of a mill-power as defined in the accompanying proposals, subject, however, to the limitations and restrictions set forth in this Indenture and in said Proposals.

The grantor reserves to itself, the right, in addition to the other reservations, in this Indenture contained, and the said grantee, granting such right to the grantor, its successors and assigns, to enter upon the premises above described at any and at all times for the purpose of shutting off the water and to shut off the water the use of which is granted under the name of sixteen non-permanent 24 hour mill-powers, whenever in the opinion of the Hydraulic Engineer or of

such other officer or agent aforesaid there is not sufficient water flowing in said river to permit its use according to the terms of this grant.

It being understood and agreed hereby that whenever the water is shut off as aforesaid the grantee shall not open or suffer the gates or other appurtenances which shut off the water to be again opened, without the consent of the grantor or its proper agent as aforesaid in writing first obtained.

If said gates or other appurtenances for shutting off the water are opened or suffered to be opened by the grantee its servants or agents during the time they should be shut as hereinbefore provided, the grantee shall pay to the grantor two hundred and fifty (\$250) dollars for each occasion when said gates or other appurtenances are so opened or suffered to be opened ; it being hereby agreed by the parties hereto that said sum is the amount to be paid as the liquidated damages for each opening or suffering to be open of said gates or appurtenances as aforesaid. But said sum shall be taken to be the damage for the opening or suffering to be open, said gates or other appurtenances only and the grantor shall have the right, in addition thereto, to recover from the grantee, its successors and assigns any and all damages which may be occasioned to the grantor or its property or for which said grantor may be made liable by said unlawful opening or suffering to be opened of said gates or other appurtenances.

And the said grantor may also lock and seal the said gates or other appurtenances, whenever it shuts off the water.

The Holyoke Water Power Company hereby give and grant to the City of Holyoke, its successors and assigns the right to maintain the raceway as now constructed, and extending from the wheel house to the Second Level Canal.

The Holyoke Water Power Company reserve to itself, its successors and assigns a right of way thirty-seven and ninety-two one hundredths (37.92) feet in width, extending easterly from said passage-way to its Carpenter Shop lot, and between the wheel house and Dynamo Building, as a passageway, and for the purpose of maintaining, repairing and renewing the water trunk and water pipe located therein.

TO HAVE AND TO HOLD the above granted premises and water rights thereto appurtenant to the said City of Holyoke, its successors and assigns, to its and their use and behoof forever, subject, however, to the agreements, terms, conditions and all other matters and things in this Indenture and in said annexed Proposals, set forth as obligatory upon the grantee, its successors and assigns, and among other

things yielding and paying to the said Holyoke Water Power Company and to its successors and assigns forever, as annual rent for the sixteen non-permanent 24 hours mill-powers above granted the sum of Twenty-four Thousand Dollars in United States currency, payable in equal semi-annual payments; the first payment of Twelve Thousand Dollars in United States currency to be made on the day of            A.D.            , and a like payment to be made every six months thereafter, viz.: on the            day of            and of            of every year thereafter forever.

But it is agreed hereby, that the grantor will be rebate or pay back to the grantee at each and every semi-annual payment, for each day, and a proportional amount for fractions of a day, during which said grantee has been deprived of the use of said sixteen 24 hour non-permanent mill-powers, in the manner above recited, during the course of the six months then last past the sum of Eighty Dollars in United States currency.

And the said Holyoke Water Power Company, for itself, its successors and assigns, covenant with the said City of Holyoke, its successors and assigns, that the said Holyoke Water Power Company is lawfully seized in fee of the above granted land; that it has good right to sell and convey the same as aforesaid; that the same is free of all incumbrances; and that it will warrant and defend the same against the lawful claims and demands of all persons; and that said water rights hereby granted shall be maintained as herein proposed and provided forever. :

And this grant is made upon the express condition and limitation, that the present stockholders, or any persons or corporations that may hereafter be or become stockholders of or in the said Holyoke Water Power Company, shall not be holden, bound or liable upon or for any of the covenants, stipulations, conditions or agreements herein contained, or any thereof, or for any breach, non-fulfilment or non-observance thereof, or for any damage or loss which may be sustained or incurred by reason of such breach, non-fulfilment or non-observance; but, therefor, the said Holyoke Water Power Company in its Corporate capacity, and not otherwise shall be alone holden, obligated, bound and obliged.

The Holyoke Water Power Company hereby reserves unto itself, its successors and assigns, the right, at all reasonable times to enter into and upon the demised premises for the purpose of repairing the dams, canals, water-courses, water ways, or other premises which they are bound to keep in repair, or of removing the obstructions therein,

as well as to measure and compare the quantity of water used and wasted or suffered to waste with the quantity hereby granted.

And the said City of Holyoke, for itself, its successors and assigns, hereby covenants with the said Holyoke Water Power Company, that it and they will keep, fulfil and observe all and singular the covenants, stipulations and conditions herein contained or referred to, on its or their part to be kept, performed and fulfilled, and that it will not nor shall its successors and assigns at any time hereafter, or for any cause or reason, make, or suffer, or cause to be made, on any person or persons who now are, or may hereafter be stockholder or stockholders, of or in the said Holyoke Water Power Company, any claim or demand for or by reason of any breach of the covenants, stipulations or agreements herein contained or referred to on the part of the said Holyoke Water Power Company, but will look and have recourse only to the said Holyoke Water Power Company, in its Corporate capacity and not otherwise ; the present and future stockholders of the said Holyoke Water Power Company being hereby forever relieved, exempted and discharged from any and all individual and personal liability or responsibility upon or for any of the covenants, stipulations and agreements herein contained or referred to ; and that it, its successors and assigns, will pay, or cause to be paid, the rent hereinbefore reserved to be paid at the times and in the manner hereinbefore mentioned.

And the said parties hereto mutually covenant that they will respectively keep, observe and fulfill all the terms, covenants, conditions and other matters and things in the said annexed proposals, set forth as respectively obligatory upon them or their respective heirs, successors and assigns, always excepting said eighteenth article of said proposals, and the obligations in article V., to reserve the rent therein specified for mill-powers, situated on the lower level and canals.

IN WITNESS WHEREOF, etc., etc.

## PROPOSALS

BY

THE HOLYOKE WATER POWER COMPANY,

FOR THE SALE OF THEIR MILL POWERS AND LAND, AT HOLYOKE, MASSACHUSETTS.

ARTICLE I.—THE HOLYOKE WATER POWER COMPANY propose to sell their mill powers situate at Holyoke, on the Connecticut River, on the following terms and conditions, to be varied as the parties may agree in the deed. For the price that may be agreed upon they will grant a parcel of land, to be described in the deed, with one or more mill powers of the quantity of water described below, and with the covenants of title and warranty as in the annexed deed.

ART. II.—Each mill power at the respective falls is declared to be the right, during sixteen hours in a day, to draw from the nearest canal or water course of the grantors, and through the land to be granted, thirty-eight cubic feet of water per second at the upper fall, when the head and fall there is twenty feet — or, a quantity inversely proportionate to the height, at the other falls; and in order to prevent disputes as to the power of each mill privilege in the variations of the height of the water from changes of the seasons or other causes, it is understood and declared that the quantity of water shall be increased in proportion to the reduction of the height, one foot being allowed and deducted from the height of the actual head and fall, and also from that with which it is compared before computing the proportion between them; thus on a head and fall of thirty-two feet, the quantity of water to be used would be twenty-three cubic feet and nine thirty-first parts of a cubic foot per second. And the respective parties, where either has any lawful interest therein, may at all reasonable times, in a peaceable manner, and after due notice to the principal steward or agent then on duty at any mill, enter the raceway thereof, to measure and compare the quantity of water used with the quantity granted, and in the measurement all wastage shall be included — and may also adopt and use such other mode of making or verifying the said measurement as the circumstances of each particular case may require.

ART. III.—The grantors are to construct and forever keep in good repair the principal canals, and from time to time, as occasion

may require, they are to remove and clear out obstructions that may accumulate therein, always excepting ice. They are also forever to maintain the dam in the Connecticut River, at the head of said principal canals, of such length and height as may be necessary, and as they may lawfully do, in order to turn the water into the canals.

ART. IV.—The flumes and raceways of every mill are to be made, maintained, belong to, and be kept in good repair by the respective grantees, and each raceway shall be well spiled at the lower end thereof; and they are also to make and maintain a good and substantial gate at the head of each flume, which shall be so constructed, that when requisite, it may be closed in such a manner as to prevent water from flowing into the flume.

ART. V.—In order to continue in the grantors an interest in common with the grantees, for the preservation and support of the mill powers which may be granted, and to secure a fund to indemnify the grantees for expenses which may be incurred by them for making repairs, if the grantors should improperly neglect to make them, it is proposed that part of the consideration of every sale, and all that is to be allowed the grantors for the repairs, etc., by them assumed, should be paid or secured to them in the form of a reservation of rent. *It is therefore declared*, that each mill power, with the land to which it is annexed, shall forever be subject to a perpetual annual rent of at least two hundred and sixty ounces troy weight of silver, of the present standard fineness of the silver coin of the United States, or an equivalent in gold, at the option of the grantee at the time of payment; which rent is to be paid in yearly payments forever, free from all charges or deduction whatever for taxes or assessments of every description, which may be assessed or levied upon any granted premises, after the making of the deed, all of which are assumed by the grantees; and a perpetual annual rent, at least equal to the above shall be reserved for every mill power hereafter sold.

ART. VI.—If any grantee shall sustain any injury from deficiency of water, happening from the grantors granting more water than they can supply, failure of the dam or canal, or any cause whatever, excepting the neglect or misconduct of himself or the wilful neglect and misconduct of any other person which the grantors could not lawfully prevent or control, his rent for the privilege injured may cease during the time such deficiency may continue, but no longer; and if such deficiency should happen through the misconduct or wilful neglect of the grantors, the grantees shall have a right to

recover damages in an action at law against the grantors, in addition to the rent to be withheld as aforesaid.

ART. VII.— If any grantee shall suffer damage from want of water from causes not arising from the neglect or misconduct of himself, and which may be removed or remedied, and the grantors shall, after due notice for that purpose, unreasonably fail to remove the obstructions, or remedy the mischiefs, the grantees injured, or any of them, may in the best manner they may be able, remove or remedy the causes of injury at the grantor's expense; and to pay and indemnify them for the expense and charge thereby incurred, such grantees shall, after the expiration of thirty days from the time the amount of such expense shall have been adjusted and agreed to by the parties, or ascertained by final judgment of law, or by award of referees, have a lien upon all the rents which may have been reserved to the grantors upon the sale of any mill power, and which may become payable after the expiration of said thirty days, and may demand, sue for, and receive the same, until they shall be fully reimbursed as aforesaid.

ART. VIII.— The grantees are not to use more water than granted, nor waste it, nor permit it to be wasted for want of repairs, or through the deficiency of their works or otherwise; and if so wasted, or if more be used than is granted, the grantors may stop the water from entering the flumes, by closing the gates across them, or by any other method, until such waste or excessive use be sufficiently guarded against: and may also at the same time maintain their action at law for damages.

ART. IX.— All buildings erected upon any land granted by the annexed deed, more than ten feet in height, are to be of stone or brick, the roofs covered with slate or some incombustible substance, and the coverings well secured against fire; and if any other be erected, the grantors or their assigns may enter and abate them, and have any other appropriate remedy.

ART. X.— All the land conveyed to the grantees of water power, in connection with the mill sites, shall be held, used and improved for mills, manufactories, or buildings appurtenant thereto, or for such dwelling houses, boarding houses, sheds, and other out-houses, as shall be required for the accommodation of the owners, agents, clerks, overseers, machinists, watchmen or operatives employed in such mills, and not appropriated to any other purpose whatever, nor sold nor alienated except in connection with the mill sites, and subject to all the conditions and restrictions of the original grant.

ART. XI.—The grantees are not to use any building for, or to set up or continue any laboratory, powder-mill, furnace or forge, nor any chemical or other works whatever, which may be so noxious or dangerous, from fire or otherwise, as to impair, injure, or endanger the life, safety, health, or reasonable comfort of any person now or hereafter, living or employed in and about the land or works of the grantors or their assigns or the grantees or assigns of the Hadley Falls Company, or which shall endanger the buildings, property, or works, now or hereafter to be placed upon the land of the grantors, by themselves or others. And in case any such should be so set up, continued or used, the grantors or their assigns may enter and abate them, and also may sue for damages, and may likewise stop the water as above mentioned, from passing into the flumes, until such nuisance be removed or discontinued; nor are the grantors or their assigns to set up, continue or use any such on their land so near that of the grantees, as to cause the above-described mischiefs, or either of them; and should any such be set up, continued or used, the grantees or their assigns may enter and abate the same, or have any other appropriate remedy therefor, and during the continuance of such nuisance by the grantors or by their assigns, after due notice for discontinuing the same, the grantees suffering thereby, their heirs, successors or assigns, may maintain their action at law or equity, against the party setting up, using or continuing such nuisance; and if the same shall have been set up, used or continued by license from the grantors, shall also be discharged from the payment of the rent accruing during the continuance of such nuisance, but no longer, and the parties may pursue any and all of their said remedies at the same time. Provided, however, that the foregoing agreement to prevent nuisances is not to be understood to prevent the grantors or their assigns from building, using and maintaining machine shops, with the smiths' forges, hammers and other things necessary, and pertaining thereto, for making all kinds of machinery, within a reasonable distance of the granted premises; nor to prohibit any grantee or his assigns from setting up and using machine shops, with all things necessary for making and repairing machinery; nor to prohibit either party or his assigns from setting up, using, enlarging, or improving any establishment for bleaching, dyeing coloring or printing goods, with all things necessary therefor (excepting dangerous, noxious or offensive works as aforesaid), and no grantee shall have the right to object to the use of any building for the purposes for which it had been used before or



at the time of the deed to such grantee, or to object to any building previously erected, on account of the materials of which it is composed, or the manner in which it may be built.

ART. XII.— If any grantee, his heirs, successors, or assigns shall set up, use or continue any of the above prohibited nuisances, or shall fail to pay the rent duly, and the grantors, their successors or assigns, shall in a proper Court have recovered final judgment for damages for, or on account of such nuisance, or for the rent so in arrear, or damages for the non-payment of such rent, or if in any suit in such Court between the grantors and any of the said grantees, or their respective heirs, successors or assigns, or between either of them and any person doing any act by authority from either of them touching any such nuisance, the fact of setting up, using or continuing any such nuisance by such grantee, or by his successors or assigns, shall have been put in issue, or involved in the trial of any issue, joined in such suit, and it shall have been determined, found or proved that any such nuisance has been set up, used or continued, and the grantee, his heirs, successors or assigns, for the space of ninety days after due notice thereof, shall fail to pay and satisfy the judgment so recovered, touching said rent, or shall fail to remove and discontinue every thing which shall have been determined, found or proved to be such nuisance as aforesaid, then the mill and mill power, with all the land, and buildings attached or belonging thereto, or commonly used therewith, within or upon which any such nuisance shall have been so set up, used or continued, or for which the rent shall have been unduly withheld as aforesaid, with all the privileges and appurtenances belonging to such mill, mill power, land and buildings, *shall become so far forfeited*, that it shall be lawful for the grantors, or their successors or assigns to enter into and upon the said granted premises, and the same again to have, hold, possess and enjoy as of their, the grantors former estate therein ; and such grantee, or his heirs, successors or assigns, and all tenants and persons claiming under him or them, to expel, and put out and remove, and to continue so to hold the same without accountability for rent, unless received, until such judgment or debt for rent or damages, shall have been paid, with interest and until all the costs and expenses of removing and abating every such nuisance shall have been reimbursed to them, together with all costs, charges and expenses incurred in thus entering and taking and holding possession ; and if such *payment and reimbursements* shall not be made within three years from the time

of the said entry, then the grantors or their successors or assigns, shall, at the expiration of that period, continue to hold the granted premises, so entered upon, to the *sole use* of themselves, their heirs, successors and assigns *forever*, without any right of redemption by the said grantee, his heirs, successors or assigns. But nothing herein contained shall be construed to bar or otherwise prevent any right of action which the grantors may have for the recovery of said rent and damages, but the remedy herein provided shall be accounted as only concurrent with that of such action or actions.

ART. XIII.—In case any grantee shall *bona fide* sell or convey any mill power with the land originally granted therewith, or when several mill powers are granted in the same deed, and the land conveyed with them is not therein specially divided, apportioned and attached to each, if the grantee shall *bona fide* sell or convey any one or more of them with such part and portion of the land as shall be necessary and convenient for the profitable use and employment of the power or powers sold, leaving sufficient for the profitable use and employment of the power or powers unsold, the assignees or purchasers shall be holden to pay the rent of the mill power and land so sold, and to perform all the agreements, covenants and conditions relating thereto, and connected therewith; and the grantors will not hold the original grantees responsible therefor, unless such conveyance or assignment be made fraudulently, with the intent to defeat the grantors of any of their said rents, or of their remedies for breach of any agreements, or unless the said grantees shall reserve a rent out of the premises to themselves or others, or shall retain some estate, title, or interest therein: *Provided*, such assignee or purchaser shall in some legal mode, bind himself and his heirs, successors and assigns to the said grantors, their successors or assigns to perform, fulfil, keep and observe, all the terms, conditions, covenants, and all other matters and things touching the property and estate assigned, which were obligatory upon the original grantee, his heirs, successors or assigns. And in case of any sale as aforesaid, of any one or more of several mill powers originally conveyed by the same deed, with the proper and convenient part of the land, as before stated, and the compliance by the assignee or purchaser with the terms of the foregoing proviso, the premises so by such sale severed and divided, as well those so sold, as those unsold shall be, and be considered in all respects as if the same had been originally severed in like manner, and had been granted and conveyed by the said grantors in several

and distinct conveyances, and all the covenants, agreements, conditions and other things of and concerning the whole of the granted premises, shall apply to each part of said premises after such severance, in like manner as if each of said parts had been conveyed alone, the rent however reserved for all the powers granted in the original deed, to be divided proportionably to and among the powers sold and those unsold.

ART. XIV.—The grantors reserve to themselves, their successors and assigns, the right to alter, modify, enlarge or expunge any of the agreements, terms, conditions or parts of the foregoing proposals, from time to time, as they may think proper, in their bargains and sales to, and agreements with subsequent purchasers, so far as to affect only the mutual rights and obligations of the grantors and such subsequent purchasers; except that a rent at least equal to the above shall be reserved for every mill power hereafter sold, unless all the prior grantees shall otherwise agree.

ART. XV.—The respective heirs or successors, and the assigns of the parties, are declared to be entitled to all the rights, advantages, and forfeitures, and bound by all the obligations, duties and conditions of, and remedies against, their original parties respectively, as hereinbefore set forth, unless otherwise expressed.

ART. XVI.—The stockholders, present or future, of the Holyoke Water Power Company, shall not in any way or manner, or at any time, or for any cause or reason, be holden or made individually or personally accountable upon any grants, covenants, stipulations, or agreements made or entered into by the said Holyoke Water Power Company, nor for any neglect, nonfeasance, omission, or malfeasance of the said Holyoke Water Power Company, but shall be forever exempted and relieved from all such personal liability.

ART. XVII.—The grantors reserve the right to draw off the water from their canals, for the purpose of clearing out, removing obstructions therein, or repairing the same, and also whenever necessary for the purpose of prosecuting and continuing the operations of the Holyoke Water Power Company, their successors and assigns, in the building of mills, and constructing the water works connected therewith, in the way usually done in similar cases, and with as little interruption in the use of the water powers conveyed to the respective grantees as the circumstances and nature of the cases may from time to time admit of. They also reserve the right to enter upon the premises of all grantees, for the purpose of laying down and repairing

gas and water pipes, and for the purpose of constructing, altering or repairing such water courses and drains as a due regard to health and convenience may require. They also reserve all gas and water pipes which may exist at the time of the sale.

ART. XIX.—All mill sites, mill powers and lands sold, granted, leased or conveyed to any person or corporation by the Holyoke Water Power Company are to be taken, received and held by the grantees, lessees, or purchasers thereof, and by their successors, heirs, and assigns, subject to, and with the express reservation of the legal rights of the prior grantees of the Hadley Falls Company which are in no way to be affected or changed by such sale, grant, lease or conveyance; and, also, subject to the express condition, and to be sold and conveyed on the terms, conditions, provisos and agreements, set forth and contained in the deed, and proposals thereto annexed, of George W. Lyman, Francis Bacon, and Augustus H. Fiske, receivers of the Hadley Falls Company, to Alfred Smith, bearing date on the twelfth day of March, in the year one thousand eight hundred and fifty-nine, and recorded in the Registry of Deeds for the county of Hampden, in Book 196, pages 131 and following, for the full understanding and effect whereof, reference is hereby made to said deed and proposals, and to the record thereof. And every clause, covenant, or exception contained either in these proposals or in the annexed Indenture, is to be taken and construed, consistently with the requirements of the said deed to Alfred Smith and so as not to contravene the true intent and meaning of the same or of any part thereof.

Mr. BROOKS. I will offer a contract between the city of Holyoke and the Holyoke Water Power Company. (Presenting paper to counsel for the city.) I will offer some other papers, also.

Mr. GREEN. For what purpose are they offered, Mr. Brooks?

Mr. BROOKS. For the purpose of showing that we have a right to have our wires and poles in the streets of Holyoke.

Mr. GREEN. We object to it.

Mr. BROOKS. I am going to put in the map, too.

Mr. COTTER. What are these papers, Mr. Brooks?

Mr. GREEN. Of course I have only one that is offered to me. The only one I see is a contract which is signed by Mr. Newton, Chairman of the Board of Public Works of the city of

Holyoke, and Mr. Waters, Treasurer of the Water Power Company.

Mr. BROOKS. If you will be kind enough to look at that. (Handing another paper to Mr. Green.) We purpose to put in a map that is referred to in these papers. There is an attested copy of a vote. Here is another contract, dated 1895. Did you look at this?

Mr. GREEN. No.

Mr. BROOKS. You do not make any formal objection?

Mr. GREEN. We do not object to the vote.

Mr. BROOKS. I have a certified copy of a certain vote; we shall connect it by further evidence.

Mr. Brooks read the following paper, which was marked "Ex. 38, FHB."

## EXHIBIT 38.

## CITY OF HOLYOKE.

City Clerk's Office.

Regular Meeting, Tuesday, December 9th, 1890.

The following petitions were received and disposed of as follows:

Edward S. Waters, for Holyoke Water Power Co., for leave to locate electric light poles as indicated on map shown.

Granted.

A true abstract from records of Mayor and Board of Aldermen of above date.

Attest:

EDW. A. KANE, City Clerk.

Mr. GREEN. (Referring to another one of the papers in question.) This is a contract for electric lighting.

Mr. BROOKS. Yes, sir; both of these contracts are.

Mr. GREEN. I object to the admission of any one of them. We might, perhaps, take them up one by one.

Mr. COTTER. Perhaps that is the better way. The inquiry may be prematurely made; did the city act under these papers?

Mr. BROOKS. Yes, sir, we shall show that they did.

Mr. COTTER. Do you wish to be heard, Mr. Green?

Mr. GREEN. Yes, sir, I should like to be heard, most decidedly. I do not know as the Commission is yet aware as to what that paper purports to be. It is nothing more or less than a contract drawn by some board of our city government or some committee of our city government—various ones—contracting for lights.

Mr. COTTER. For electric lighting, I understand.

Mr. GREEN. For electric lighting.

Mr. COTTER. Of the streets?

Mr. GREEN. Yes, sir. We claim that that has no tendency—

Mr. COTTER. Are these agreements still pending? Were they at the time of the filing of the schedules?

Mr. GREEN. No; not all of them, any way.

Mr. BROOKS. I beg your Honor's pardon?

Mr. COTTER. Are these agreements still pending, or have they all expired?

Mr. BROOKS. No sir; there is one that was pending at the time of the passage of these votes in question—or rather, at the time that the question was voted upon by the inhabitants of the city of Holyoke and at the time when the signature of the mayor was attached.

The CHAIRMAN. Take them up one at a time.

Mr. COTTER. The Chairman suggests that they be taken up one at a time and considered separately.

Mr. GREEN. That is right.

Mr. BROOKS. I will take the earliest.

Mr. GREEN. Which is that?

Mr. BROOKS. The earliest I have here is dated June 11, 1890.

Mr. GREEN. I object to that.

Mr. COTTER. What is that paper?

Mr. BROOKS. That is a contract for electric lighting between the city of Holyoke, through its Committee on Fuel and Street Lights, and the Holyoke Water Power Company.

Mr. COTTER. And we understand you to say that you propose to show in due course of time that the city acted under that?

Mr. BROOKS. Yes, sir, and we propose still further to show that this Committee on Fuel and Street Lights had the authority to sign this contract; but we say that that is not very material, because we purpose to prove that the city acted on the contract, and on every one of these contracts.

Mr. GOULDING. Has that contract which you hold in your hand expired now?

Mr. BROOKS. Yes.

Mr. GREEN. What is that?

Mr. GOULDING. Has that contract expired now?

Mr. GREEN. Oh, yes, that contract of 1890 expired long ago.

Mr. BROOKS. It was a five years' contract.

Mr. COTTER. You offer that paper, we understand?

Mr. BROOKS. We do.

Mr. COTTER. And the other side objects to it?

Mr. BROOKS. Yes, sir.

Mr. COTTER. We will hear the objection.

Mr. GREEN. It is stated, and I am arguing the question on the supposition that this contract is offered on the ground which they state, namely, to prove that this Company has a right or had a right to do business. We object. It has been stated, both by Mr. Matthews and myself, that this Company has no legal right to do an electric lighting business in the city of Holyoke.

Mr. COTTER. Yes, we understand your position in regard to that.

Mr. GREEN. Yes, sir. We say that the fact that the city of Holyoke has bought gas—or in case of this contract, electric light—of this company, supposing they prove that the contract was made by competent authority and that the city acted under it (and I presume very likely that may be so, although I do not know anything about it)—assuming that is so, it cannot establish as a legal proposition, either by way of estoppel or as a matter of evidence, that they did have a right to do an electric business in the city of Holyoke. The mere fact that we, as an ordinary purchaser, as an individual might have done, may have seen fit to make a contract with them, presuming that they had a right to do those things which they were professing to do, and that in pursuance of that contract we have bought light of them and paid for it, has no tendency to show that they had a right to do the business. We make a contract with them; then the question comes up between us at a subsequent time relative to the purchase of property; we say, "You have something to sell us here which you have no business to sell because you have not complied with the law." We say that the mere fact that we have done a little business with them and bought lights of them, under a supposition the truth of which we knew nothing about and had no reason to ascertain, is not binding upon us, either by estoppel or in any other manner.

Mr. COTTER. We understand your position, Mr. Green.

Mr. BROOKS. I desire to say just a word, may it please the Commission. This contract provides that we shall have the right to maintain our poles and wires in the streets.

Mr. GREEN. We never raised any question about those poles.



Mr. BROOKS. Did you make any question about wires?

Mr. MATTHEWS. No. Our objection goes to your right to do an electric lighting business in the city. You have no charter for that.

Mr. BROOKS. That was not your statement the other day.

Mr. MATTHEWS. Oh, yes.

Mr. BROOKS. That we had no rights in the streets?

Mr. GREEN. No rights in the streets for the gas business.

Mr. BROOKS. No rights for the electric light.

Mr. COTTER. We are inclined, gentlemen, to receive the evidence, reserving the rights of the parties. We understand the other question will be considered later. But this special piece of evidence, as a circumstance bearing upon that question, we think we ought to receive.

Mr. GREEN. To which you will, of course, allow us our exception.

The CHAIRMAN. Whatever the legal effect may be, we will consider hereafter.

Mr. GREEN. I know it, but we would like to reserve the exception to the admission of the paper. We claim it is entirely incompetent.

Mr. BROOKS. I want to put in the authorization of the Committee to make the contract, which I just find.

Mr. COTTER. Gentlemen, I suppose you will save the same exception to the other papers relating to the same matter.

Mr. GREEN. You will save us an exception on all these papers, which we claim are incompetent.

Mr. Brooks read the following paper, which was marked  
• "Ex. 39, FHB.":

## EXHIBIT 39.

## CITY OF HOLYOKE.

In Common Council, June 3, 1890.

Ordered, the Board of Aldermen Concurring, that the Committee on Fuel and Street Lights be instructed to execute a five years' contract with the Holyoke Water Power Company for the term of five years from July 19, 1890, to furnish the city with one hundred and sixty (160) half arc lamps in accordance with their proposition dated May 9, 1890.

In Common Council, June 3, 1890.

Adopted,

J. F. STAPLETON, Clerk.

Sent up for concurrence.

In Board of Aldermen, June 3, 1890,

Concurred,

M. J. GRIFFIN, City Clerk.

A true copy.

Attest:

M. J. GRIFFIN, City Clerk.

Mr. BROOKS. Now comes the agreement I referred to.

Mr. Brooks read the following agreement, marked "Ex. 40, FHB."

## EXHIBIT 40.

This Agreement, made this eleventh day of June, A. D. 1890, by and between the City of Holyoke, a municipal corporation established in the county of Hampden, State of Massachusetts, hereinafter called the party of the first part and the Holyoke Water Power Company, a corporation established by law in Holyoke in said County, and hereinafter called the party of the second part, witnesseth:

That said party of the second part, in consideration of the agreement of the party of the first part hereinafter contained, and of other valuable considerations by it received of the party of the first part, hereby covenants and agrees with the party of the first part as follows: That it will furnish for and during the period of five (5) years from July 19th, 1890, electric lamps to the number of 160 and of the kind known as "half arc" lamps or 1200 standard candle power lights; and all poles (including lamp poles properly equipped for the lamps), apparatus, fixtures and accessories required for said lamps, and operate and maintain such lamps in such parts of said city as lie within a radius of one and one-half miles of the City Hall, and at such particular locations as the City Council may direct; such lamps to be hung on posts or mast-arms as the committee on lighting the streets may determine; that during said period it will provide and maintain said lamps and repair and paint and maintain the lamp poles and all supporting poles, hoods and supports for the lamps, and operate, clean and care for such lamps in all respects in strict conformity with the following conditions, which are made a part of this agreement. And said party of the second part shall furnish to said party of the first part a bond satisfactory and acceptable to the Committee on Fuel and Street Lights of said party of the first part.

## CONDITIONS.

## LIGHT GIVING POWER.

The party of the second part shall furnish standard forty-five volt lamps and supply the same with seven amperes of current during the time of lighting said lamps; i. e., the party of the second part shall furnish forty-five volts to each and every lamp.

### LIGHTING.

The lamps are to be operated continuously, each and every night during the continuance of this agreement, as soon as they can be supplied and placed in position. They are to be started thirty minutes after sunset, and kept in operation until thirty minutes before sunrise; the time of sunset and sunrise for the purpose of this contract, shall be determined by the Old Farmer's Almanac.

### CARBONS.

These shall be of the best quality now in use for and best adapted to street lighting, and of the size adapted to the current used, and must burn uniformly and give a clear and steady light.

### GLOBES.

These shall be of clear glass, unless otherwise ordered by said committee, and shall be free from lettering, of best quality and of proper shape to avoid casting rings or streaks of light and shadow. All globes shall be thoroughly brushed, inside and outside, daily, so that they shall obstruct the light as little as possible, shall be washed as frequently as necessary, and any globes that may become broken, shall be replaced by sound ones each day before starting the lights. If the said committee shall request any of the globes changed, such change shall be made at once.

### LOCATION OF LAMPS.

The street lamps as now located being 103 in number, shall retain their present location, all additional lamps to be located at such points as the City by its Committee shall direct.

The poles upon which the lamps or mast arms are to be placed are not to exceed twenty-five feet in height above pavement.

### APPARATUS.

The lamps, wires and other conductors shall be thoroughly insulated and so placed and cared for as not to expose the public or property to danger, or to unnecessarily interfere with the work of the fire department in case of fire.

In case the said Committee on Fuel and Street Lights shall decide that any of the lamp posts, supporting posts or apparatus connected therewith require repairing, owing to an unsightly or dangerous condition, the same shall be repaired at once, and within twenty-four hours of notice from said board; if not so repaired, said board may make the repairs and the expense thereof shall be deducted from any amount due hereunder.

The members of the police department may daily report to the city the hour when the lamps are started and the hour when they are extinguished, and may report the length of time that any lamps shall fail to burn.

#### INDEMNITY CLAUSE.

The party of the second part shall indemnify and save harmless the party of the first part from any and all loss, cost or damage that it may suffer by reason of any infringement suits or any liability for personal property, or other damage resulting from defective insulation, defective poles, fixtures or apparatus, or carelessness in the operation and management of said lamps or anything connected therewith.

#### ALLOWANCES TO BE MADE.

In case the actual candle power of any light or lights from any of the lamps shall be less than that called for herein, payment shall only be made for the actual candle power as ascertained, as aforesaid the amount to be paid to be based pro rata upon the amount which would be paid were the candle power equal to that required hereby; but this shall not imply a right to continue to furnish lights under this contract at a reduced candle power. In case any of the lamps are not lighted as early as required by this contract, or extinguished prior to the time established for the extinguishment thereof, or in case any of them shall be extinguished during the time they ought to burn, then payment shall not be made for the time such lamps are not lighted when they should be, and a pro rata allowance shall be made therefor. Any amount that shall be due the party of the first part under the provisions of this clause of the contract, shall be deducted out of any money that may be payable to the party of the second part.

### RELOCATION OF POLES.

Said Committee may, at any time, relocate any lamp poles and the lamps thereon; but the expense in making the change shall be paid by the city.

### ADDITIONAL LIGHTS.

In case any lights in addition to those herein provided for shall be required by the city within said district, the same shall be furnished and maintained on the same terms and conditions as those herein provided.

### REPAIRS MAY BE DONE BY CITY.

In case the party of the second part shall fail to keep the lamp poles, supporting poles, lamps and fixtures in such repair as shall be satisfactory to said committee, then said committee may cause such repairs to be made at the expense of the party of the second part, and such expense shall be deducted from any amount due them.

The number of lamps on any one circuit shall not exceed the number which the dynamo for such circuit is rated to run, and such dynamo shall not be connected with any other circuit.

If a lamp pole shall be located by the city, which in the opinion of said committee it is impracticable for the party of the second part to reach with its wires, without the erection of supporting poles in any of the streets of the city, the party of the second part shall not be obligated, hereby, to maintain a lamp on such located poles, unless the proper authority to erect such supporting poles as said committee deems necessary, is granted.

In consideration of the agreement of the party of the second part, hereinbefore contained, the party of the first part agrees that it will, subject to any or all rights it has or may have under any of the terms and conditions of said agreement, pay said party of the second part for said lights, for and during said periods, at the rate of thirty-three and one-third cents per night per light, provided, however, that if the party of the first part shall require the use of more than twenty mast-arms, it shall, in addition to the foregoing price, pay an additional sum of five cents per night for each mast-arm so used in excess of the aforesaid twenty, the

same to be paid monthly for the service of the preceding month, on vouchers duly approved under the ordinances of the city; all payments to be made at the treasurer's office; that in case on the expiration of this contract, a new contract is not entered into with the party of the second part to light the streets of the city, any company to whom such new contract shall be awarded shall purchase of the party of the second part, if the party of the second part desires to sell, the poles and wires owned by it and used in carrying out the terms thereof; such purchase to be at a price to be determined by three appraisers, one to be appointed by the party of the second part, one by the purchaser, and the third by the two so chosen; and in case the city shall engage in the business of lighting its streets, on the expiration of this contract, said city shall take said property on the said terms.

It is agreed that until the full number of lights called for hereby are in position, such lights as are furnished shall be at the price and on the terms herein named, whether whole or half arc lights.

The party of the second part is to have a right to maintain and use an overhead system of lighting, and this contract is made subject to that right, and may be terminated by the party of the second part in case it is by law prevented from maintaining and using such system.

Witness our hands this eleventh day of June, A. D. 1890.

Witness M. P. C.

R. C. WINCHESTER.

M. P. CONWAY, *Chairman.*

E. L. SQUIER,

N. G. BAKER,

WILLIAM T. WALSH,

Witness.

JOSEPH BARDWELL,

CORNELIUS O'LEARY,

LUCIUS ELY,

JOHN J. TAYLOR,

*Committee on Fuel and Street Lights, City of Holyoke.*

Witness H. W. P. Co.

R. C. WINCHESTER.

HOLYOKE WATER POWER CO.,

By EDWARD S. WATERS, *Treasurer.*

Mr. BROOKS. The next contract I offer is the one which was in force at the time of this taking.

The CHAIRMAN. The same thing, isn't it?

Mr. BROOKS. Substantially.

Mr. GREEN. Are you sure about that, Mr. Brooks? I am not sure about the dates myself.

Mr. BROOKS. I am so informed. It ran out this last July.

Mr. GREEN. (After examining contract.) It is dated July 19, 1895, and runs for three years.

Mr. BROOKS. This next contract runs from July 19, 1895, for three years.

Mr. COTTER. That will be printed, Mr. Brooks?

Mr. BROOKS. I suppose so. I shall not read it, anyway. I have here attached the authority in a certain committee to sign the contract. I would like to have the contract marked. •

The contract referred to was marked "Ex. 41 FHB.," being as follows :



## EXHIBIT 41.

This Agreement, made this nineteenth day of July A. D. 1895, by and between the City of Holyoke, a municipal corporation established in the County of Hampden, State of Massachusetts, hereinafter called the party of the first part, and the Holyoke Water Power Company, a corporation established by law in Holyoke, in said County, and hereinafter called the party of the second part, witnesseth:

That said party of the second part, in consideration of the agreement of the party of the first part hereinafter contained, and of other valuable considerations by it received of the party of the first part, hereby covenants and agrees with the party of the first part, as follows: That it will furnish for and during the period of three (3) years from July 19th, 1895, electric lamps to the number of 250 or more and of the kind known as "half arc" lamps of 1200 standard candle power lights; and all poles (including lamp poles properly equipped for the lamps), apparatus, fixtures and accessories required for said lamps, and operate and maintain such lamps in such parts of said city as lie within a radius of one and one-half miles of the City Hall, and at such particular locations as the City Council may direct; such lamps to be hung on posts or mast-arms as the Committee on Fuel and Street Lights of said party of the first part may determine; that during said period it will provide and maintain said lamps and repair and paint and maintain the lamp poles and all supporting poles, hoods and supports for the lamps, and operate, clean and care for such lamps in all respects in strict conformity with the following conditions, which are made a part of this agreement. And said party of the second part shall furnish to said party of the first part a bond satisfactory and acceptable to the Committee on Fuel and Street Lights of said party of the first part.

## CONDITIONS.

## LIGHT GIVING POWER.

The party of the second part shall furnish standard forty-five volt lamps and supply the same with seven amperes of current

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during the time of lighting said lamps; i. e., the party of the second part shall furnish forty-five volts to each and every lamp.

#### LIGHTING.

The lamps are to be operated, continuously, each and every night during the continuance of this agreement, as soon as they can be supplied and placed in position. They are to be started thirty minutes after sunset, and kept in operation until thirty minutes before sunrise; the time of sunset and sunrise for the purpose of this contract shall be determined by the Old Farmer's Almanac.

#### CARBONS.

These shall be of the best quality now in use for and best adapted to street lighting, and of the size adapted to the current used, and must burn uniformly and give a clear and steady light.

#### GLOBES.

These shall be of clear glass, unless otherwise ordered by said Committee, and shall be free from lettering, of best quality and of proper shape to avoid casting rings or streaks of light and shadow. All globes shall be thoroughly brushed, inside and outside, daily, so that they shall obstruct the light as little as possible, shall be washed as frequently as necessary, and any globes that may become broken shall be replaced by sound ones each day before starting the lights. If the said committee shall request any of the globes changed, such change shall be made at once.

#### LOCATION OF LAMPS.

The street lamps as now located, being 236 in number, shall retain their present location, all additional lamps to be located at such points as the city by its committee shall direct.

The poles upon which the lamps or mast-arms are to be placed are not to exceed twenty-five feet in height above the pavement.

#### APPARATUS.

The lamps, wires and other conductors shall be thoroughly insulated and so placed and cared for as not to expose the public

or property to danger, or to unnecessarily interfere with the work of the fire department in case of fire.

In case the said Committee on Fuel and Street Lights shall decide that any of the lamp posts, supporting posts or apparatus connected therewith require repairing, owing to an unsightly or dangerous condition, the same shall be repaired at once, and within twenty-four hours of notice from said board; if not so repaired, said board may make the repairs and the expense thereof shall be deducted from any amount due hereunder.

The members of the police department may daily report to the city the hour when the lamps are started and the hour when they are extinguished, and may report the length of time that any lamps shall fail to burn.

#### INDEMNITY CLAUSE.

The party of the second part shall indemnify and save harmless the party of the first part from any and all loss, cost or damage that it may suffer by reason of any infringement suits or any liability for personal property or other damage resulting from defective insulation, defective poles, fixtures or apparatus, or carelessness in the operation and management of said lamps or anything connected therewith.

#### ALLOWANCES TO BE MADE.

In case the actual candle power of any light or lights from any of the lamps shall be less than that called for herein, payment shall only be made for the actual candle power as ascertained, as aforesaid, the amount to be paid to be based pro rata upon the amount which would be paid were the candle power equal to that required hereby but this shall not imply a right to continue to furnish lights under this contract at a reduced candle power. In case any of the lamps are not lighted as early as required by this contract, or extinguished prior to the time established for the extinguishment thereof, or in case any of them shall be extinguished during the time they ought to burn, then payment shall not be made for the time such lamps are not lighted when they should be, and a pro rata allowance shall be made therefor. Any amount that shall be due the party of the first part under

the provisions of this clause of the contract shall be deducted out of any money that may be payable to the party of the second part.

#### RELOCATION OF POLES.

Said committee may, at any time, relocate any lamp poles and the lamps thereon; but the expense in making the change shall be paid by the city.

#### ADDITIONAL LIGHTS.

In case any lights in addition to those herein provided for shall be required by the city within said district, the same shall be furnished and maintained on the same terms and conditions as those herein provided.

#### REPAIRS MAY BE DONE BY THE CITY.

In case the party of the second part shall fail to keep the lamp poles, supporting poles, lamps and fixtures in such repair as shall be satisfactory to said committee, then said committee may cause such repairs to be made at the expense of the party of the second part, and such expense shall be deducted from any amount due them.

The number of lamps on any one circuit shall not exceed the number which the dynamo for such circuit is rated to run and such dynamo shall not be connected with any other circuit.

If a lamp pole shall be located by the city which, in the opinion of said committee, it is impracticable for the party of the second part to reach with its wires, without the erection of supporting poles in any of the streets of the city, the party of the second part shall not be obligated, hereby, to maintain a lamp on such located pole, unless the proper authority to erect such supporting poles as said committee deems necessary is granted.

In consideration of the agreement of the party of the second part, hereinbefore contained, the party of the first part agrees that it will, subject to any and all rights it has or may have under any of the terms and conditions of said agreement, pay said party of the second part for said lights, for and during said periods, at the rate of One Hundred Dollars per light per year, provided,

however, that if the party of the first part shall require the use of mast-arms, it shall, in addition to the foregoing price, pay an additional sum of five cents per night for each mast-arm so used, the same to be paid monthly for the services of the preceding month, on vouchers duly approved under the ordinances of the city; all payments to be made at the Treasurer's office; that in case on the expiration of this contract, a new contract is not entered into with the party of the second part to light the streets of the city, any company to whom such new contract shall be awarded, shall purchase of the party of the second part, if the party of the second part desires to sell, the poles and wires owned by it and used in carrying out the terms hereof; such purchase to be at a price to be determined by three appraisers, one to be appointed by the party of the second part, one by the purchaser, and the third by the two so chosen; and in case the city shall engage in the business of lighting its streets, on the expiration of this contract, said city shall take said property on the same terms.

It is agreed that until the full number of lights called for hereby are in position such lights as are furnished shall be at the price and on the terms herein named, whether whole or half arc lights.

The party of the second part is to have a right to maintain and use an overhead system of lighting, and this contract is made subject to that right, and may be terminated by the party of the second part in case it is by law prevented from maintaining and using such system.

Witness our hands this nineteenth day of July, A. D. 1895.

Witness to R. S. B.  
R. C. WINCHESTER.

RICHARD S. BURNS, *Chairman*  
*Committee on Fuel and Street Lights,*  
*City of Holyoke.*

Witness  
To E. S. Waters, *Treas.*,  
R. C. WINCHESTER.

HOLYOKE WATER POWER CO.  
EDWARD S. WATERS, *Treasurer.*

## CITY OF HOLYOKE.

In Board of Aldermen, July 18, 1895.

ORDERED, the Board of Councilmen Concurring, That the Committee on Fuel and Street Lights, be and they are hereby authorized and instructed to sign a contract, with the Holyoke Water Power Company, for lighting the city for three years, under the Conditions submitted by the Company.

In Board of Alderman, July 18, 1895.

Adopted: E. A. KANE, Clerk.

Sent Down for Concurrence.

In Common Council, July 18, 1895.

Concurred: D. W. KENNEY, Clerk.

Approved: H. A. CHASE, Mayor.

A true Copy. Attest: EDW. A. KANE, Clerk.

Received and filed July 19, 1895.

R. C. WINCHESTER, Cashier.

Holyoke, July 19, 1895.

To the Holyoke Water Power Company:

Gentlemen:—At a meeting of the Committee on Fuel and Street Lights held Thursday evening, July 18, 1895, the following vote was passed, to wit:—

Voted that the Chairman be authorized and instructed to sign a contract with the Holyoke Water Power Company for furnishing Electric lights to the City for three years from July 19th, 1895.

A true copy. Attest: WM. T. WALSH. Clerk.

Mr. BROOKS. I will offer another contract.

Mr. GREEN. Which is that?

Mr. BROOKS. This is a contract—

Mr. GREEN. Executed by the Board of Public Works?

Mr. BROOKS. Yes.

Mr. GREEN. I will make a further objection to that, which ought to be stated to the Board. I understand it contains some

provision about digging up the streets for gas mains, or something of that sort; I have not seen it myself. We claim that the Board that made that contract had no right to bind the city in that particular; no authority whatever.

Mr. BROOKS. We shall introduce later the charter, which gives the Board of Public Works full power and authority.

Mr. COTTER. At all events, you propose to show that the city acted under this contract?

Mr. BROOKS. Yes; we purpose to show that the Holyoke Water Power Company did, too.

Mr. GREEN. Did what?

Mr. BROOKS. Acted under this contract.

Mr. COTTER. We will make the same ruling upon this that we did on the other paper.

Mr. GREEN. Our exception is saved generally to this, the same as to the others.

The contract referred to was marked "Ex. 42, FHB.," and read, as follows: .

## EXHIBIT 42.

This agreement made this eleventh day of March, A. D. 1897, by and between the Holyoke Water Power Company, a corporation duly established and having a usual place of business in Holyoke, Hampden County, Massachusetts, a party of the first part, and the City of Holyoke, a municipal corporation duly established in said County of Hampden, party of the second part, Witnesseth:—

That said party of the first part in consideration of the promises and agreements of said party of the second part hereinafter set forth, promises and agrees to and with said party of the second part, that when it desires to disturb the surface of any of the public highways located within the precincts of said City of Holyoke, it will first obtain permission therefor either from the Superintendent of Out-Door Work or the Board of Public Works of said party of the second part; that said party of the first part will while doing any work which may necessitate the digging up or disturbing the surface of any of said highways, exercise due and proper care to prevent accident to travellers and others who may have occasion to use said highways, and will put all such Streets, Lanes and Highways, which are opened into as good repair as they were in when opened or disturbed by said party of the first part; that said party of the first part agrees to hold and to save said party of the second part harmless from all loss, cost, expense or damage of any nature which arises or may be caused by the disturbance or digging up of said Streets, Lanes or Highways by said party of the first part, or which may be caused or may arise by any act in connection therewith, or which may arise or be occasioned by the failure of said party of the first part to restore said highways, streets or lanes to the same condition that the same were in prior to the time when said party of the first part commenced operations thereon, meaning hereby that said party of the first part shall pay over to said party of the second part such sum for counsel fees, expenses, costs and damages as said party of the second part may be required to pay because of the failure of said party of the first part to perform the foregoing stipulations.



Said party of the second part in consideration of the promises of said party of the first part hereinbefore set forth, promises and agrees to and with said party of the first part, that upon the request in writing of said party of the first part, made to the Board of Public Works or said Superintendent of Out-Door Work, for leave to disturb or dig up the surface of said highways, streets or lanes, said Board of Public Works or said Superintendent of Out-Door Work shall authorize said party of the first part to do such acts with reference to the disturbance of the surface of said streets, highways and lanes or the digging up thereof, as said Board of Public Works and said Superintendent of Out-Door Work shall deem proper and appropriate under the circumstances.

In witness whereof, the party of the first part has caused these presents to be signed and its seal to be thereto affixed by its treasurer thereto duly authorized, and the said party of the second part has caused these presents to be signed on its behalf by James H. Newton, Chairman of its Board of Public Works thereunto duly authorized, on the day and year first above written.

EDWARD S. WATERS,  
Treasurer, Holyoke Water Power Company.

JAMES H. NEWTON,  
Chairman, Board of Public Works.

Mr. BROOKS. We have nothing more to offer tonight.

The CHAIRMAN. Half past nine, then, Monday, at Springfield.

(Adjourned.)

### THIRTEENTH HEARING.

Springfield, Monday, April 24, 1899.

The Commission met at the Court House at 9.30 A. M.

SAMUEL B. WINCHESTER, recalled.

By Mr. MATTHEWS.

Q. I meant to ask you, but I think I forgot, when the power generator was installed in the electric light station? A. I think that started in the spring of '92.

Q. That is the large dynamo that supplies the electric current for power? A. Yes, sir.

Q. Installed in the spring of 1892? A. Yes, sir.

Q. And it has been running ever since? A. Yes, sir.

Q. I understood you to say that you supplied about 133 horse power, motive power, to consumers of power in Holyoke? A. Yes, sir.

Q. Did you mean that was the amount actually supplied, or the capacity of the machine? A. I meant the actual amount supplied. The full capacity of the machine is used almost every day except Saturdays. Every day the schools run that machine is used to its full capacity. They have from 60 to 70 horse power, but they do not run Saturdays.

Q. What do they use it for? A. For driving fans, for ventilation.

Q. When was that begun? When did the schools begin to use power for that purpose? A. I should say either 1892 or 1893. Soon after we installed the power machine.

Q. I notice by your report to the Gas Commission, the amount of power sold, represented by horse power, is 96 and a fraction. A. That took it up to last June, did it not?

Q. Yes, sir, June 30, 1898? A. The high school has since been started, and it takes sixty-odd horse power.

Q. That is to say, up to June 30, 1898, when you made your last return to the Gas Commissioners, you had been using be-

tween 90 and 100 horse power? A. I have forgotten the figures. That was taken from what we had at that time.

Q. If the sworn return states it at 96 and a fraction, that was correct? A. Yes, sir.

Q. And since then you have taken on the new high school? A. Yes, sir.

Q. And that brings the consumption for power purposes up to the capacity of the generator? A. Yes, sir.

Q. Do you know what the price charged by the Holyoke Water Power Company for commercial lights is? A. We have different prices.

Q. I wish you would state them as fully as you can. A. We have three different kinds of arc lights, not different candle-power, for the candle-power is the same. But the stores keep open either six nights, or four nights, or three nights per week, and we have circuits for each system of lights. The price for six lights per week is \$90 per year, net.

Q. When you say net, you mean if they pay within a certain time, I suppose? A. Yes.

Q. That is, if the consumer pays promptly, all he pays is \$90? A. Yes.

Q. That is for six nights a week? A. Yes, sir. That includes Sunday nights. It is really run seven nights, but we make no mention of the seventh night.

Q. It is nominally six nights, but really seven nights? A. Yes, sir.

Q. That is, practically every night in the year? A. Yes, sir.

Q. And you charge \$90 per annum for those lights? A. Yes, sir, we run them till eleven o'clock.

Q. From dusk till eleven? A. The average is about one hour before sunset until 11.

Q. How many of those lights have you? A. I can't answer that offhand.

Q. Go on to the four-night lights. A. The four-night lights are \$75 a year. No, I think \$72. I can't tell just the price.

Q. They run four nights a week through the year? A. They run four nights throughout the year, and the other two nights they run till 6.30. All commercial lights start the same time, and run until 6.30, except for perhaps four months in the summer we do not light that class of lights before 6.30.

Q. The lights during the four nights run from about an hour before sunset to 11 P. M.? A. I didn't quite catch that question.

Q. You stated that two nights a week these lights at \$72 per annum run till 6.30 except during the summer? A. Yes, sir.

Q. During what hours do those lights which you sell for \$72 a year run on the four nights? A. I wish to qualify that price. I think the price is \$67.50 with the discount off.

Q. What hours do they run on the four nights per week? A. From one hour before sunset to 10.30, and Saturday nights until 11.

Q. And do not run Sundays? A. No, sir.

Q. And the three nights per week lights? A. The three nights per week lights I think are \$63 net.

Q. What are their hours? A. Their hours are just the same as the four nights, with the exception of one night dropped out. That is, Mondays, Thursdays and Saturdays. The other nights they run till half past six, the same as the four-night a week lights.

Q. They don't run seven days, do they? A. No, sir; the other three nights, Tuesdays, Wednesdays and Fridays, they run till 6.30.

By the CHAIRMAN.

Q. Have you stated what you charge for those? A. \$63 I think, net.

By Mr. MATTHEWS.

Q. Do you know the number of lights in those three classes respectively? A. I cannot give it to you; I can give it to you later.

Q. The total is about 170 to 180? A. Yes, sir.

Q. Will you make up a list of the number of lights on these three schedules? A. I will take it through the month, any month you tell me to.

Q. January, 1898, and also the present time? A. Yes, sir.

Q. Upon what terms do you sell electricity for power? A. We have day power—

Q. Before I put that question, the prices you have mentioned, \$63, \$67.50, and \$90, are the present prices, or those paid

in January, 1898, or both? A. Both. There has been no change.

Q. Now, I will repeat question about the power charges? A. We have day power and night power.

Q. What are the charges? A. It depends upon the quantity used.

Q. You charge on a sliding scale? A. Yes, sir.

Q. Can't you tell us what the scale of prices is? A. We make a base of \$100 for single horse power. When it gets up to five horse power it would be \$75 per horse power.

Q. \$75 for each horse power when there are as many as five used? A. Yes, sir.

Q. Is that all? A. Eight to ten horse power, \$60.

Q. Yes. Anything more? A. 25 horse power, \$50. That is day power I am speaking of, 10 hours a day.

Q. These are all figured on the basis of 10 hours per day, are they? A. Yes, sir.

Q. Anything else? A. If they use it in the evening we run the generators until 11 o'clock. If they use it in the evening there is an additional charge. I can't remember just the pro rata rate for that.

Q. Do you make a lower price if they use more than 25 horse power? A. That is the largest amount of power that we have been called upon to give a price for, I think, continuously.

Q. How about that high school that uses 60 horse power? A. We made them a special price, for various reasons.

Q. What is that price? A. For all the schools the same price, \$40 per horse power.

Q. All the prices you have given, from \$150 down to \$40, are on the basis of continuous power for 10 hours during every week day? A. Yes, sir.

Q. And the lowest price is \$40 per horse power per annum for the schools? A. Yes, sir.

Q. Now, what are those 10 hours? What portion of the day do those occupy? A. I don't quite understand your question.

Q. When does the 10-hour service begin? A. At present it begins at 6.30 and runs until 6 in the evening. That would make 11 hours and a half, but beginning at 6.30 was only started the

15th of the present month. There are a few shops who wish to start half an hour earlier in the morning, and give their help Saturday afternoons.

Q. That is not 10 hours a day, it is 11 and a half? A. They are not supposed to use it only 10 hours. We run our machine 11 hours and a half.

Q. You run your generator from 6.30 in the morning until 6 o'clock in the evening? A. Yes, sir.

Q. And the customers are only supposed to use it 10 hours? A. Only 10 hours.

Q. That is, to average that through the week? A. Yes, sir.

Q. Have you stated all the variation in price that you make for power? A. I think so, except in cases where they use a fan, two fans, which require a very small amount of power, one-eighth of a horse power or one-fourth of a horse power. We have to make connections, and so forth, and they only use it from May till September. The price for those small fans would be more than \$100 per horse power. I can't give just the exact figure. It is figured by the horse power.

Q. You say you can't give the additional charge for night service? A. I cannot.

Q. If you shut your generator down at 6 o'clock in the evening, how do you get that power for night service? A. We don't shut it down. We run it every night. These prices I give you are for shops that commence at 6 o'clock.

Q. But you don't know what the additional price for night work is? A. It is not quite half, I think, for the additional 5 hours.

Q. Not quite half as much as you charge on the 10-hour basis? A. I can't give you the exact amount.

Q. Will you find that out, and insert it in the memorandum that you are to prepare? A. Yes, sir.

Q. Now, about the charge for incandescent lights? A. The base of our charge is one cent and a quarter an hour for each 16-candle-power lamp, with different discounts according to the amount used.

Q. Do you remember what the discounts are? A. They run from 33 per cent. to 5 per cent., or vice versa, 5 per cent. to 33 per cent.

Q. Five per cent. is for how many lights? Is this percentage based on the number of lights or on the annual bill? A. Well, we don't divide up any small quantity. If a man wants 20 or 30 lights, anything up to that, his bill would be 5 per cent. discount.

Q. Five per cent. up to what? A. Well, I can't say just what number of lights we have got on that discount, but I should say up to 50 lights.

Q. To what class of consumers do your larger discounts apply? A. Take the Hotel Hamilton, for instance, they have about 400 lights, three to four hundred lights. Their discount is 33 1-3 per cent.

Q. Does the city require any incandescent lights? A. They buy a very few.

Q. They must have some, I suppose? A. They have a few.

Q. The City Hall and school houses are supplied, are they not? A. They have eight lights lighting the clock in City Hall. They have four lights on the bridge, what we call the Dwight Street foot bridge. Then they have the high school lights.

Q. How many there? A. There are 800 installed there, I think.

Q. What do you charge the city for its incandescent lights? A. I think that our bill for the lights in the school is 33 per cent. discount, but I wouldn't be positive as to that.

Q. Will you look that up? A. Yes, sir.

Q. How much of the total 133 horse power that you sell from your power current is sold to the city, including the high school? A. I cannot give the exact figures on that; about 70 horse power.

Q. 70 out of the 133? A. Yes, sir.

Q. You cannot furnish the exact figures? A. No.

Q. What is the total of incandescent lights that you supply now? A. I think there are in the vicinity of 2,200 wired, but not all of them are run at any one time.

Q. Among those 2,200 would be included those 800 in the high school? A. No, sir.

Q. I asked you how many lights you are supplying now, including the high school. You are supplying the high school now, aren't you? A. Yes, sir.

Q. How many lights are you supplying in all, including those

furnished to the public schools of Holyoke? A. I should think about 1800 is the most we have burned at one time.

Q. 1800 in all? A. In all.

Q. How many of those would be supplied to the public schools? A. Well, they call for three or four hundred at a time, at the high school. Of course we have no way of knowing how many they do burn of the 800.

Q. 1800 is what you are supplying now as a maximum? A. Yes, sir.

Q. Including three or four hundred at the schools? A. Yes, sir.

Q. You say you have no means of knowing how many lights they run. Don't you sell by meter? A. Yes, we sell by meter, but at the end of three months we take that meter, and we couldn't tell how many they were running any one night.

Q. The building is wired for 800? A. Yes, sir.

Q. And according to your meter readings you would judge they were running three or four hundred? A. No. We have a separate line running to the high school, which is not in use unless they call for it. They telephone us what they want.

Q. What machine do you run those lights from? A. The alternator.

Q. A separate circuit? A. Yes, sir.

Q. Does the alternator supply anything else? A. Yes, it supplies the incandescent lights above the first level canal, all of them in the city.

Q. Your best judgment, then, is that the total average number of incandescent lights that you are furnishing is 1800, and of those something between three and four hundred are in the high school? A. Yes. They burn a comparatively short number of hours out of the year.

Q. You make your discounts according to the number of lights a consumer has, or according to the amount of electricity that he consumes, as shown by the meter, or according to his annual bills, or how? A. Well, we have no stated rule. I think the amount of the bills has as much to do with the discount as anything.

Q. Do you have a printed set of discounts? A. We have a printed set of discounts when we put in lights by contract,



the same as we do the arc lights, three, four or six nights a week. We have a set of prices that is based on the one cent and a quarter per 16 candle power lamp.

Q. How long do you think it would take you to get the data I asked you for this morning? A. If I should go to Holyoke this morning I could get it here this afternoon.

The CHAIRMAN. That can go in the record. If you can furnish the data to-morrow, it will be satisfactory.

Q. Can you do that? A. Yes. I can't carry all the prices in my head.

The CHAIRMAN. O, no.

Mr. MATTHEWS. I will give you a copy in the meantime, Mr. Winchester. That is all.

#### RE-DIRECT.

By Mr. BROOKS.

Q. Mr. Winchester, what is the charge per kilowatt hour by meter? A. The base charge is 25 cents.

Q. Is that with discount out, or discount to be taken out? A. That is the discount to be taken out. It is the same as 1 1-4 cents per hour per 16-candle power lamp.

Q. You say your electricity for power is 10-hour power? A. The prices I have given are for 10-hour power.

Q. And for how many days in the week? A. Six days, except holidays.

Q. With reference to your high school, how much of the time is that lighted? A. A very small portion.

By the CHAIRMAN.

Q. What time does school let out, do you know? A. The high school lets out at 1 o'clock or 1.30 o'clock, and it is only lit in the evening at entertainments, lectures, etc.

By Mr. BROOKS.

Q. What are your six-night stores, drug stores? A. Drug stores, and clothing stores where they want the lights to run in front in their windows to advertise.

Q. You say you make your price to the schools for various reasons; what are the reasons? A. Well, the schools only run 40 weeks during the year. That is one reason, and at the high school the city paid for the wires, for the transformers and the installing.

Q. In the building? A. In the building. They were put in since this question came up, and the city paid for them.

Q. What other reason, if there are any? A. They are the largest consumers we have at present on one bill.

Q. The amount that they use per day—does that constitute any reason? A. I say they are the largest consumers we have, made out on one bill.

Q. And you say they only use— Well, about how many hours a day do they use it. A. The power?

Q. Yes. A. All of the schools except the high school, or nearly all of them, I think, are run until four o'clock.

Q. The high school stops at one? A. Stops at one; but if they have occasion during the winter for lectures, etc., they start up the fans and ventilating apparatus in the evening.

Q. Of course Saturdays and Sundays they are not in use? A. No, sir.

Q. And vacation time? A. And vacation time.

Q. How much are the fans used in the schools? A. The fans are used the year round in some of the schools, except during vacation, of course. Where they depend on the fans for heating the building they also use them in the summer for ventilating the building.

#### RE-CROSS EXAMINATION.

By Mr. MATTHEWS.

Q. What price do you charge for public arc lights? A. \$100 per year.

Q. And are the prices you have mentioned those which are now in use both for public and commercial lighting? A. Yes, sir.

Q. And were in force on June 30 last? A. Yes, sir.

Q. There has been no change since? A. Not that I know of; not that I recall.

By Mr. GOULDING.

Q. Is that the half-arc? A. The streets,—the public lamps are half-arc lamps. The stores, I think I mentioned, are all full arc, 2000 candle-power.

Q. The street lights run all night, do they? A. Yes, sir.

HORATIO A. FOSTER, sworn.

By Mr. BROOKS.

Q. Your full name is Horatio A. Foster? A. Yes, sir.

Q. And what is your place of residence? A. Buffalo, N. Y.

Q. And what is your business or profession? A. Consulting engineer, with special regard to electricity and mechanics.

Q. Mr. Foster, for the purpose of qualifying you I will ask you what experience you have had with electrical plants and electrical engineering. You may start from the beginning and give it to me. A. In 1884 I started my practical study of electricity with the Daft Electric Co. of New York City and Jersey City, and in the following year, 1885, installed an electric railway in Baltimore. It was one of the earliest, and of course we had more or less special designing and special applications. The following year—

Q. That is 1886? A. In 1886—I went to the Thomson-Houston Co., taking their practical electrical course through the factory, and shortly after that became their engineer in Philadelphia. I was in Philadelphia a year for the office there as their engineer, and then I was transferred to New York city, becoming the superintendent of the East River Electric Light Co.

By Mr. MATTHEWS.

Q. What year was that? A. That was in 1888, I believe.

Q. East River Electric Light Co? A. East River Electric Light Co. And while there I was superintendent and engineer for that company and for various others, among them the Harrisburg Excelsior Co., the Yonkers Electric Light Co., and the North New York Electric Light Co.

By Mr. BROOKS.

Q. All these were electric light companies that you speak of? A. All electric light companies. I was in New York as engineer and superintendent until July, 1891, when I was appointed expert for the census office to make examination of all of the electrical plants in New York state.

Q. What census office, the State census? A. No, the United States; they had not appropriation enough to take the

entire census of the United States in the industry, and so picked out one State, and I was selected as expert to examine.

Q. The various plants of the State of New York? A. Yes. I started out on the road immediately and travelled for very nearly a year through the State of New York, writing up—writing up; I say—making a report on, I believe, 160 central stations and about 600 of the isolated plants.

By Mr. MATTHEWS.

Q. These were electric light? A. These were electric light. And I also made a report on the technical part of such electric railways as there were then in existence.

By Mr. BROOKS.

Q. That consumed about a year? A. About a year. I then went to Washington and compiled all of the data, which were published in the report, which was merged into the manufacturers' division of the census office. May 1, 1893, I went to Chicago as editor of the technical paper there, known as "Electrical Industries," and was editor of that during the greater part of the Fair.

Q. During the World's Fair? A. During the World's Fair. In September, 1893, I became assistant to Prof. George Forbes, who was the electrician of the Cataract Construction Co., and conducted his New York office until December of the following year, 1894. Jan. 1, 1895, I was sent to Buffalo by the Cataract Construction Co. to begin investigating the cost of steam power in Buffalo and its neighborhood and whatever else they might send me, and for about a year and a half I did little else but test different plants, such as the Buffalo Express and Buffalo Courier and the Urban Milling Co., the Buffalo Water Works, different grain elevators—in fact, almost anything that could be brought up where there was a different kind of power, and it was wished to determine how much it cost per horse power to run it under existing circumstances.

Q. In comparison with water? A. No comparison whatever; simply the cost of steam power under existing circumstances, and without any theory, so far as it was possible. During that time I went to Fall River and there tested, I think, six of the large mills—six mills—simply for the cost of steam power, thinking that we could possibly get the data for the lowest cost

of power to be obtained, as they were on tide water and got their coal as cheap as any other place in New England, and all other circumstances were such as to get it. I also during that year made a rather prolonged test of the Homestead Steel Works where they had some 25,000 horse power of boilers and 35,000 horse-power in engines and pumps, to determine there the cost of power for Mr. Carnegie, and incidentally for the Cataract Construction Co. And since that time I have had an office as consulting engineer in Buffalo, and have been connected with the Cataract Construction Co. in such work in my line as they had for me to do, in the one point, particularly, making official tests of very large generators, 5000 horse-power machines.

Q. Aside from the electric plant of the Holyoke Water Power Co. have you made any examinations of electric plants in Massachusetts? A. Yes, I made a report for the Massachusetts State Gas and Electric Light Commission on the Boston Electric Light Co. and of the Boston Edison Co., or rather the Edison Electrical Illuminating Co., I think it is called, of Boston.

Q. That is, you made an examination for our State board and followed that up by report to the State board on these plants?

A. Yes. It was an appraisal very similar to this that we are working on here.

Q. An appraisal of the plants? A. Yes. In addition to that I made a report for an English syndicate on the Chicago Edison plant.

Q. Whether or not you examined the Chicago Edison plants with reference to making a report upon their value? A. Yes, entirely so.

Q. You were called by the Holyoke Water Power Co. to examine and form and express an opinion of the value of this electric plant, were you? A. Yes, sir.

Q. When did you begin your examination? A. The latter part of November, 1898.

Q. And how long extended have your researches been since then? A. Well, I finished and put in my report on the 8th of December. I don't remember; I think it was about two weeks that I was concerned in it, checking up the inventory and making the value right there.

Q. You mean by that the structural value? A. The structural value, yes.

Q. Whether or not you have also considered the value of the water power—? A. Yes.

Q—that we claim is connected with the plant and a part of the plant? A. Yes.

Q. In making your estimate of structural value, as of what time did you make it? A. It would apply any time during the year 1898, because there is no particular change in figures, so that you could take it either in February or December, as you please.

Q. And in making your estimate of the structural values how did you consider the plant? I mean by that, as it was when you saw it? A. The buildings part of it I placed a value on as they were, as they existed at that time, without any reference to when they were built. The detail part of the plant, such as electrical apparatus and pole lines and all of the detail, I placed prices on from price lists with discounts, and then after making that entirely up, which was practically of new plant—

Q. By practically, do you mean new machinery? A. Practically as of new machinery and new appliances; and I then deducted an amount for depreciation.

Q. And whether or not the values that you place upon various parts of this plant, and the total, was, in your opinion, its fair market value as of January, 1898, and from that time down to December, or November? A. Yes. I beg your pardon. That was the structural value you referred to?

Q. Certainly. I mean of all the physical features of the plant? A. Yes.

Q. Whether or not since that time there has been any increase, or decrease, in the value of iron or copper, or both? A. Iron has advanced something like 50 per cent. I don't know the exact figures. Copper has advanced about 60 per cent.

Q. So that, if you were to fix your valuations as of today, for instance, would the structural valuation be increased, or decreased? A. Somewhat increased.

Q. Have you made any figures upon the increase? A. None whatever.

Q. I mean since November or December, 1898? A. No; only sort of kept track of prices, is all. I get notified every few days that prices have advanced.

Q. What in your opinion was, in January or February, 1898, the fair market value of the various physical features of this plant in toto? A. \$328,250.

Q. And that is after deducting anything, or nothing, for depreciation? A. I deducted an amount for depreciation.

Mr. BROOKS. I purpose to offer this schedule, may it please your Honors.

The schedule is as follows :

# STRUCTURAL VALUE OF THE ELECTRIC LIGHTING PLANT

OF

THE HOLYOKE WATER POWER COMPANY.

*(Estimated by Horatio A. Foster, Dec. 8, 1898.)*


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## SUMMARY OF VALUES.

Mill site . . . . .		\$72,000.00
Wheel house . . . . .	\$2,047.00	
Head-gates . . . . .	4,833.00	
Penstocks . . . . .	1,355.00	
Fender in front of head-gates . . . . .	40.00	
Wheel-pit and Tailrace . . . . .	52,120.00	
Boiler house . . . . .	7,952.00	
Stack and Breeching . . . . .	7,973.00	
Engine house, including engine foundations . . . . .	11,237.00	
Main building, including shaft foundations . . . . .	32,950.00	
Connecting tunnels . . . . .	2,054.00	
All wiring for buildings . . . . .	153.00	122,715.00
Dynamos, arc, incandescent and power . . . . .	\$20,920.00	
Armatures, exciters and motors . . . . .	1,350.00	
Switchboards and appliances . . . . .	3,359.00	
Transformers . . . . .	1,005.00	
Arc lamps . . . . .	14,452.00	
Meters . . . . .	815.00	
Service appliances and meters . . . . .	3,257.00	
Poles in place . . . . .	9,928.00	
Wire in place . . . . .	11,432.00	
Pole line appliances . . . . .	885.00	
Boiler house machinery . . . . .	7,175.00	
Steam piping . . . . .	2,605.00	
Engine house machinery . . . . .	11,500.00	
Wheel house machinery . . . . .	17,060.00	
Shafting . . . . .	12,608.00	
Belts . . . . .	3,897.00	
Pulleys . . . . .	3,875.00	126,123.00
Office furniture, store room and tools . . . . .		805.00
	\$248,838.00	\$321,643.00
Add interest during construction, for an average of one half the period, estimated as one year, 6 per cent. for six months, on \$200,000 . . . . .	6,000.00	
Add 10 per cent. for contingencies and engineering . . . . .	24,883.00	30,883.00
		\$352,526.00
Deduct amount of renewal fund for seven years . . . . .		24,276.00
		<u>\$328,250.00</u>

# SCHEDULE OF ELECTRIC LIGHT PLANT OF THE HOLYOKE WATER POWER COMPANY.

## MILL SITE.

Including land and right to draw sixteen (16) mill powers of water from the upper level canal for an annual rental . . . . .	\$72,000.00
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## BUILDINGS, ETC.

### WHEEL HOUSE.

1 story brick, wood truss and plank roof covered with gravel, plank floor, 16-in. walls. Dimensions: 49 ft. x 38 ft. outside; 12.23 ft. high from foundation level to top of wall. 22,772 cu. ft. . . . .	\$2,047.50
Head-gates and racks (from pp. 378-379) . . . . .	4,833.00
Penstocks (from p. 379) . . . . .	1,356.00
Fender in front of head-gate (from p. 380) . . . . .	40.00
Wheel-pit and tailrace . . . . .	52,120.00

### BOILER HOUSE.

1 story brick, iron truss and plank monitor roof covered with gravel, brick paved floor, 16-in. walls. Dimen- sions: 71 ft. x 40 ft. — 8-in. outside; 31.5 ft. high from bottom of foundation to top of wall. 90,936 cu. ft. . . . .	7,952.00	68,348.00
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## STACK AND BREECHING.

Brick stack 152 ft. high, base 19 ft. square, flue 7 ft. diam. ; Excavation, 1,261 cu. yds. ; Puddling, gravel, 135 cu. yds. ; Back filling, 945 cu. yds. ; Piles, 121 spruce, 1 ft. diam. 20 ft. long. ; Flagggers, grouted, 766 sq. ft. ; Stonework, rubble masonry grouted, 168 cu. yds. ; Brick work, 393,059 brick. ; Iron work, iron door and frame, 500 lbs. ; Ladder irons, 576 lbs. ; Anchor bolts, 85 lbs. ; Iron cap, 8 pieces, 600 lbs. each, 4,800 lbs. ; Breeching, 3,071 lbs. iron ; Hangers, 210 lbs. iron . . . . .	\$7,973.00
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## ENGINE HOUSE.

1 story brick; brick peak; iron truss, and plank roof covered with slate; main floor plank; 16-in walls; basement floor earth. Dimensions: 75 ft. 6 in. x 56 ft. outside, 30.5 from bottom of foundation to top of wall. 128,954 cu. ft.

Foundations for 2 engines, brick . . . . .	\$11,237.00	\$19,210.00
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## MAIN BUILDING.

Two stories and basement; brick, iron truss roof, covered with planks and gravel; 16-in. walls; foundations on canal side and part of ends; heavy rubble masonry to ground level; basement floor concrete; dynamo room floor plank; second story floor plank and suspended from roof trusses. Dimensions: 145 ft. x 50 ft. outside, 45.8 ft. high from bottom of foundation to top of wall; 331,687.5 cu. ft. . . .

30,450.00

## TUNNELS CONNECTING WHEEL HOUSE AND MAIN BUILDING.

Excavation, 584 cu. yds. . . . .	.50	\$292.00	
Back-filling, 526.3 cu. yds. . . . .	.25	131.57	
Flaggers, 9 in. high, 597.4 sq. ft. . . . .	.20	119.48	
Brickwork in cement, 74,752 . . . . .	12.00	897.00	
Concrete (55.6 sq. ft.), 72.8 sq. yds. . . . .	1.00	72.80	
Iron sole plates, with bolts, nuts, and bottom plates, cast and wrought (3,914 lbs.) . . . . .	.05	195.70	
9,504 brick in cement . . . . .	15.00	142.56	
Sundries estimated at . . . . .		200.00	2,054.00

## ALL WIRING OF BUILDINGS FOR INCANDESCENT LAMPS.

14	sockets in boiler house.	
2	“ engine room.	
	basement.	
24	“ main building.	
	basement.	
4	“ wheelhouse.	
13	“ engine room.	
32	“ dynamo room.	
8	“ store room.	
5	“ offices and hall.	
<hr/> 102	“ Total at \$1.50 . . . . .	153.00

## IN MAIN BUILDING.

## DYNAMOS.

*Arc.*

21 Schuyler arc machine as follows :

1	16-light	9.6 amperes	(n)	\$20	per lamp capacity	\$320
4	25	"	"	20	"	2,000
8	30	"	"	20	"	4,800
2	50	"	"	20	"	2,000
1	40	"	"	20	"	800
5	50	"	"	20	"	5,000

With these are the following regulators for the arc dynamos:

16 later style regulators; 5 old style . . . . . \$14,920.00

## POWER AND INCANDESCENT.

2	Edison bi-polar type, No. 12, 30 k. w. 110-volt dynamos, d. c., @ \$25 per k. w. . . . .	\$1,500		
1	general electric, 120 k. w. alternator, 1,040 volts, set up . . . . .	2,000		
1	Edison bi-polar, 100 k. w., 500-volt, 130 h.p., power generator, @ \$20 per k. w. . . . .	2,000	5,500.00	
	Freight and labor . . . . .		500.00	\$20,920.00

## EXTRA ARMATURES.

1	for 100 k. w. 500-volt generator . . . . .	\$500.00		
1	for 30 k. w. Edison dynamos . . . . .	150.00		
1	for 9.6 amp. Schuyler 40-light arc dynamos . . . . .	300.00	\$950.00	
1	exciter for 120 k. w. alternator, type I. B., 10 amp. 125 volts, set up . . . . .	\$100.00		
1	motor for machine shop, class 15, T. H. 500 volts, 7½ h. p., set up . . . . .	225.00	325.00	
	Freight and labor . . . . .		75.00	1,350.00

## SWITCHBOARDS AND APPLIANCES.

1	20-circuit T. H. arc plug board, form C, 25 panels of 4 cir. each., in place . . . . .	\$1,500.00
20	Schuyler arc ammeters @ \$5 . . . . .	100.00
2	ammeters, Edison, 264 amperes, @ \$10 . . . . .	20.00
1	" " 100 " " 10 . . . . .	8.00
2	" " 176 " " 10 . . . . .	20.00
1	" " 13 " in store . . . . .	6.00
1	" T. H. ac., 40 ampere . . . . .	25.00
1	" " 25 " . . . . .	25.00
1	" " 105 " . . . . .	25.00
1	" or " current indicator on 7½ h.p. motor . . . . .	5.00

1	ammeter Whitney portable, 10 ampere, at office . . . . .	\$25.00	
1	voltmeter, T. H., a. c. 125 volts . . . . .	35.00	
1	" Edison, 550 volts . . . . .	35.00	
4	pressure indicators, common, @ \$25 . . . . .	100.00	
2	" " Howell, @ 35 . . . . .	70.00	
1	" " " portable . . . . .	50.00	\$2,049.00

## RHEOSTATS.

2	Carpenter, for a. c. Exciter & Field, @ \$15 . . . . .	\$30.00	
2	Edison 30 k. w. for 120 volt d. c., Field, at \$30 . . . . .	60.00	
1	Edison 100 k. w. for 500 volt d. c., Field . . . . .	30.00	
2	Holtzer-Cabot regulators for the 500 volt rheostat @ . . . . .	200.00	320.00

## EQUALIZERS.

2	Edison iron-clad 100 ampere, @ \$40 . . . . .	\$80.00	
2	" " 50 " " 30 . . . . .	60.00	
2	" " 25 " " 30 . . . . .	60.00	
1	circuit-breaker, T. H., 150 amperes, @ \$35 . . . . .	35.00	235.00
	Freight and labor . . . . .		300.00

## SWITCHES.

1	T. H. dp. dt. 30 amp. . . . .	\$9.00	
1	" " st. 150 " . . . . .	15.00	
2	" sp. " 150 " @ \$8 . . . . .	16.00	
1	" dp. " 30 " . . . . .	6.00	
1	" " " 30 " on 7½ h. p. motor . . . . .	3.00	
1	Edison 5-point throwover switch, 500 amp. . . . .	25.00	
	Freight and labor . . . . .	25.00	99.00

## FEEDER BLOCKS.

2	G. E. Co. 100 amp. a. c. double blocks @ \$8 . . . . .	\$16.00	
12	Edison plug blocks @ \$1.50 . . . . .	18.00	
2	iron fuse blocks on 7½ h. p. motor . . . . .	5.00	
	Freight and labor . . . . .	10.00	49.00

## LIGHTNING ARRESTERS.

24	Schuyler arc @ \$5 . . . . .	\$120.00	
4	Wurts, box form " 7 . . . . .	28.00	
4	G.E.a.c. porcelain 5 . . . . .	20.00	
2	G.E. d. c. 500-volt 5 . . . . .	10.00	
6	Wurts on line 7 . . . . .	42.00	
2	others not in use (Wurts) . . . . .	10.00	
	Freight and labor . . . . .	50.00	280.00

## GROUND DETECTORS.

1 T. H. a. c. with transformer . . . . .	\$20.00		
1 Edison 3-lamp form . . . . .	2.00		
Freight and labor . . . . .	5.00	\$27.00	\$3,359.00

## TRANSFORMERS.

1 station transformer for switchboard lamps and instruments . . . . .	\$15.00		
7 type F. 150-lt. G. E. 1,040 volts out on line @ \$115 . . . . .	805.00		
1 type H. 150-lt. G. E. 1,040 volts out on line . . . . .	110.00		
Freight and labor . . . . .	75.00	\$1,005.00	1,005.00

## ARC LAMPS INSTALLED.

297 Schuyler 7 amp. double lamps, delivered at station @ \$24 . . . . .	\$7,128.00		
285 Schuyler 9.6 amp. single @ \$20 . . . . .	5,700.00		
73 Schuyler 9.6 amp., in repair shop @ \$20 . . . . .	1,460.00		
6 Waterhouse shop 7. amp. @ \$24 . . . . .	144.00		
1 Sperry 9. amp. . . . .	20.00	\$14,452.00	14,452.00

## METERS IN STORES.

2 Edison No. 2, . . . . .	\$8 plus \$3 = \$11 . . . . .	\$22.00	
2 " " 4, . . . . .	8 plus 3 = 11 . . . . .	22.00	
3 " " 8, . . . . .	10 plus 3 = 13 . . . . .	39.00	
2 T. H. 2-wire wattmeters, class 5, . . . . .	13 plus 3 = 16 . . . . .	32.00	
1 " 2 " " " 7½, . . . . .	13 plus 3 = 16 . . . . .	16.00	
10 " 3 " " " 7½, . . . . .	17 plus 3 = 20 . . . . .	200.00	
3 " 3 " " " 15, . . . . .	25 plus 3 = 28 . . . . .	84.00	
5 " 3 " " " 25, . . . . .	30 plus 3 = 33 . . . . .	165.00	
1 " 2 " " " 25, . . . . .	22 plus 3 = 25 . . . . .	25.00	
4 " 3 " " " 50, . . . . .	37 plus 3 = 40 . . . . .	160.00	
1 meter scale for weighing plates, in office, . . . . .		50.00	815.00
190 arc hanger boards in stores @ \$2 . . . . .		\$380.00	
76 switches in power services, 25 amp. st. dp., set \$1 . . . . .		76.00	
112 Brady arc cut-outs @ \$2.50 . . . . .		280.00	
163 porcelain cut-outs on incandescent services @ 60c. . . . .		98.00	
152 porcelain cut-outs on power services @ 50c. . . . .		76.00	
80 spark arresters @ \$1 . . . . .		80.00	\$990.00
Services (details on p. 382) . . . . .		2,267.00	3,257.00

## POLES.

273 iron line poles (set made up of 13 ft. of 3-in. pipe, 8 ft. of 2½, 4 ft. of 2-in. pipe) . . . . .	\$2,730.00	
194 octagon chestnut and Southern pine lamp poles, 30 ft. x 6 in. top (set, \$5 delivered plus 5c. for planing; including 194 hoods, 194 hanger boards, 194 cross heads, G. E., each \$6 delivered; 194 sets of pole steps, @ 40c. per set) @ \$13.50 . . . . .	2,619.00	
15 square Southern pine lamp poles, 30 ft. x 6 in. top (set, \$3.75 delivered; also 15 hoods, 15 hanger boards, 15 cross heads, G. E., each \$6 delivered; 15 sets pole steps, 40c. per set) @ \$12 . . . . .	180.00	
3 round chestnut lamp poles, 30 ft. x 6 in. top (set, \$2 delivered; also 3 hoods, 3 hanger boards, 3 cross heads, G. E., each \$6 delivered; 3 sets of steps, 40c.) @ \$10 . . . . .	30.00	
43 mast arms (15 ft.) and poles (set; also 43 hoods, 43 hanger boards, G. E., \$2.75 each; pole, \$5.25; and \$11.50 for complete arm; 43 cables and cutter block, included with arm; 43 balance weights, 35c. each, included with arm) @ \$21 . . . . .	993.00	
262 octagon chestnut and Southern pine line poles (set, \$4.25 plus 25c., 25 ft. x 6 in. tops) @ \$6.25 . . . . .	1,637.00	
31 octagon chestnut and Southern pine line poles, 30 ft. x 6 in., \$5 plus 25c. delivered, @ \$6.50 . . . . .	202.00	
54 square Southern pine (set, \$3.08, 25 ft. x 6-in. tops) @ \$5 . . . . .	270.00	
389 round chestnut (set, 25 ft. x 6-in. tops) @ \$3 . . . . .	1,167.00	
12 " " " 30 ft. x 6-in. " " \$3 . . . . .	36.00	
19 " " " 35 ft. x 6-in. " " \$4 . . . . .	76.00	
4 " " " 40 ft. x 6-in. " " \$5 . . . . .	20.00	
4 " " heavy, in towers, 35 ft. x 8-in. tops, @ \$6 . . . . .	24.00	
1 heavy wire junction pole, 32 ft. . . . .	12.00	
2 mast arms in station, 15 ft. . . . .	22.00	\$9,928.00

## WIRE (all on pole lines).

Arc lines, mostly "Underwriters." Incandescent and power lines, triple braid, "weatherproof."

	Bare.	3 Brd.	Lbs.
6,000 ft. 0000 B. & S. . . . .	.641	.780	4,680 lbs.
5,940 ft. 0 " . . . . .	.320	.434	2,578
15,670 ft. 1 " . . . . .	.253	.354	5,547
9,480 ft. 2 " . . . . .	.201	.300	2,844
7,400 ft. 4 " . . . . .	.126	.153	1,169
404,165 ft. 6 " . . . . .	.0795	.108	43,650
			60,468 lbs.

Per lb. 15c., plus 3c. for erecting = 18c. . . . .	\$10,884.00
49,590 ft. 10 B. & S. .0314 .049 2,430 lbs. @ 16c. plus 3c. = 19c. . . . .	462.00
13,960 ft. 12 B. & S. .0198 .031 433 lbs. @ 17c. plus 3c. = 20c. . . . .	86.00
Roebbling's List of Nov. 9, 1898, minus $\frac{1}{2}$ c.	<u>\$11,432.00</u>

## POLE LINE APPLIANCES.

Cross arms, including pins and d. g. insulators :

Arms . . . . .	.42	
Lags . . . . .	.03	
Pins and insulators . . . . .	.34	
	<u>.79</u>	
28 — 10-pin arms as above @ \$1 in place . . . . .		\$28.00
Arms . . . . .	.24	
Lags . . . . .	.03	
Pins and insulators . . . . .	.20	
	<u>.47</u>	
78 — 6-pin arms as above @ 75c. in place . . . . .		58.00
Arms and lags . . . . .	.15	
Pins and insulators . . . . .	.14	
	<u>.29</u>	
346 — 4-pin arms as above @ 50c. in place . . . . .		173.00
Arms and lags . . . . .	.13	
Pins and insulators . . . . .	.07	
	<u>.20</u>	
1,550 — 2-pin arms as above @ 30c. in place . . . . .		465.00
25 special arms (2-pin) for bridges . . . . .		15.00
327 wooden brackets, with insulators @ 5c. in place . . . . .		16.00
142 iron break arms, with insulators @ 50c. . . . .		71.00
77 iron angle arms, with insulators @ 30c. . . . .		23.00
38 iron pins, with insulators @ 5c. . . . .		2.00
25 iron centre pins, for iron poles, with insulators @ 12c. . . . .		3.00
14 extensions, with 2-pin cross arms complete @ 75c. . . . .		10.00
35 iron guards . . . . .		10.00
41 iron braces, complete with screws, in place, 8c. . . . .		3.00
5 extra cross heads, on street poles @ \$1.50 set . . . . .		8.00
		<u>885.00</u>

## BOILER HOUSE MACHINERY.

5 boilers, Manning type, 5 in. x 15 ft., 184 tubes, 2½ in. dia. 165 h. p. rating. Complete, set up, including gauges, grate foundations, covering and connecting to feed and blow off pipes . . . . .	\$6,000.00
1 breeching, 3 ft. to 7 ft. dia. 60 ft. long. . . . .	} See Stack
5 uptakes, 2½ ft. x 1 ft. x 9 long . . . . .	



1 Deane duplex automatic return pump $5\frac{1}{2} \times 3\frac{1}{2} \times 5$ and receiver . . . . .	\$155.00		
Setting, etc. . . . .	50.00	\$205.00	
1 Deane No. 8 boiler feed pump, $12 \times 7 \times 12$ . . . . .	\$300.00		
Setting, etc. . . . .	50.00	350.00	\$555.00
1 500 h. p. national heater, set . . . . .			500.00
1 No. 4 Fairbanks dormant scale, No. 3,500, set. . . . .			100.00
1 iron wheelbarrow . . . . .			7.00
2 wooden wheelbarrows . . . . .			3.00
2 slice bars, 1 hoe, 1 poker, 1 rake . . . . .		10.00	\$7,175.00

## STEAM PIPING.

Live steam, boilers to engines (for details see p. 380) . . . . .	\$972.00		
Exhaust, engines to roof (for details see pp. 380-381) . . . . .	1,100.00		
Feed and blow off piping (for details see p. 381) . . . . .	370.00		
Covering, all pipes . . . . .	163.00	\$2,605.00	2,605.00

## ENGINE ROOM MACHINERY.

2,400 h. p. Wheelock non-condensing engines, cyl. $28\frac{3}{8}$ diam.; 48 in. stke.; 75 revls.; 70 lbs. steam. Full set oilers, equal 10 half-pint sight feed, and 1 quart No. 1 Nathan lubricator. Set up on foundations. 1 steam gauge, 8 in. dial; 1 set oilers; 1 oil tank . . . . .	\$11,500.00	11,500.00	
(\$3,500 for engine foundations included in value of engine house, p. 367.)			

## WHEEL HOUSE MACHINERY.

4 Hercules wheels, 45-in. diam. 20-ft. head, 285 h. p. set . . . . .	\$4,500.00		
4 Snow water-wheel governors in place, complete with shafting and pulleys for belts to wheel shaft, @ \$150 . . . . .	600.00		
1 extra crown gear, core wheel . . . . .	235.00		
1 extra jack pinion, \$125 plus \$15, with 3 feet of shaft . . . . .	140.00		
* 2 bevelled gears for Snow governors, 10 extra dogs . . . . .	20.00		
1 steam trap included in building . . . . .			
1 extra wheel shoe . . . . .	8.00		
1 extra wheel step . . . . .	5.00		
2 oil tanks . . . . .	5.00		
50 ft. of 2-in. pipe for clearing pits, 6c.; (1 2-in. brass valve, \$2; 1 2-in. ell, 15c.; 1 2-in. union, 36c.) . . . . .	8.00		
Wheel cases and supports in wheel pit . . . . .	11,539.00	17,060.00	

(For details see p. 382.)

\* 1 set extra gears for snow governors, including 1 12-in. x  $1\frac{3}{8}$ -in. x  $1\frac{5}{8}$ -in. bore; 1  $6\frac{1}{2}$ -in. x  $1\frac{3}{8}$ -in. x  $1\frac{3}{8}$ -in. bore.

Vol. III.

## BASEMENT OF MAIN BUILDING.

666 ft. of 6-in. hammered shafting . . .	@	\$4.13	\$2,750.58
50 ft. of keyway . . . . .	"	.72	36.00
31 flange couplings, 6 in. . . . .	"	31.70	982.70
20 pedestal boxes . . . . .	"	30.00	600.00
45 shaftstands and boxes, 6 in., 32½ in. high, . . . . .	"	75.00	3,375.00
21 shaftstands and boxes, 6 in., 11½ in. high, . . . . .	"	50.00	1,050.00
8 loose pulley stands . . . . .	"	50.00	400.00
2 idler stands and boxes, dismantled . . . . .	"	25.00	50.00
8 Hill clutches, 6-arm, 40-in. . . . .	"	130.00	1,040.00
4 Hill clutches, 6-arm, 48-in. . . . .	"	150.00	600.00
5 belt tighteners, 3 x 14 in., cost \$350; two are not in use . . . . .	"		477.00
16 belt shifters, cost \$308 . . . . .	"	12.00	192.00
1 tachometer . . . . .	"	25.00	25.00
3 oil filters . . . . .	"	10.00	30.00
Freight and labor erecting . . . . .	"		1,000.00
			<u>\$12,608.00</u>

## BELTS.

1 40-in. double engine belt, 127 ft. . . . .	@	\$6.24	\$792.48
1 40-in. double engine belt, 152 ft. . . . .	"	6.24	948.48
14 8-in. arc belt, 34 ft. each, 476 ft. . . . .	"	1.00	476.00
2 6-in. double arc belt, 34 in. each, 68 ft. . . . .	"	.74	50.32
2 11-in. double belt, 34½ ft., 69 ft. . . . .	"	1.38	95.22
1 16-in. " " A. C. 36½ ft., 36½ ft. . . . .	"	2.08	75.92
2 24-in. " " water wheels, 61 ft., 10 in. each = 122.8 . . . . .	"	3.36	412.16
2 24-in. double belt water wheels, 54 ft. each = 108 ft . . . . .	"	3.36	362.88
1 22-in. double belt power gen., 36½ ft. . . . .	"	3.04	110.96
1 33-in. double belt cross-over, 67 ft. . . . .	"	3.90	261.30
3 2½-in. single belt, Snow governor, 30½ ft. = 91½ ft. . . . .	"	.15	13.72
3 2½-in. single belt, Snow governor, 20 ft. = 60 ft. . . . .	"	.15	9.00
1 4-in. single belt, Snow governor, 20 ft. . . . .	"	.25	5.00
1 4-in. " " Snow governor, 30½ ft. . . . .	"	.25	7.62
2 2½-in. " " engine governor, 25½ ft. = 51½ ft. . . . .	"	.15	7.73
1 4-in. " " motor, 22½ ft. . . . .	"	.25	5.56
1 2-in. " " emery wheel, 21½ ft. . . . .	"	.12	2.58
1 2-in. " " lathe, 22½ in. each = 45 ft. . . . .	"	.18	8.10
1 2-in. " " lathe, 17 ft. . . . .	"	.12	2.04
			<u>\$3,647.08</u>
Labor putting on belts, making joints . . . . .			250.00
			<u>3,897.00</u>

## PULLEYS.

1 fly wheel, 4,800 lbs., 70 in. x 8 in. . . . .	\$288.00	
4 water wheel shaft pulleys, 96 in. x 26 in., @ \$123 . . . . .	492.00	
2 jack shaft pulleys, 56 x 25 in., @ \$55.16 . . . . .	110.32	
2 jack shaft pulleys on sleeves, 56 in. x 25 in., @ \$55.16, Sleeve . . . . .	110.32	
	108.00	
2 cross-over pulleys, 68 in. x 32 in., @ \$90.26 . . . . .	180.52	
1 engine pulley on sleeve, 60 x 42 . . . . .	98.00	
Sleeve . . . . .	115.00	
Engine pulley, 60 x 42 . . . . .	98.00	
16 arc dynamo pulleys, tight, 48 x 10½ @ \$17.28 . . . . .	276.48	
16 " " " loose, 48 x 10½ @ \$17.28 . . . . .	276.48	
2 incandescent dynamo pulleys, tight, 56 x 10½ @ \$21.87, . . . . .	43.74	
2 incandescent dynamo pulleys, loose, 56 x 10½ @ \$21.87, . . . . .	43.74	
2 clutch dynamo pulleys, clamped, 56½ x 10, @ \$22 . . . . .	44.00	
1 A. C. Dyn. pulley, 56 x 16, @ \$30 . . . . .	30.00	
1 500 volt d. c. dyn. pulley, 58 x 26 . . . . .	50.55	
Idle pulleys, 2 57½ x 15 @ \$30 . . . . .	60.00	
2 binder pulleys for Eng. belt, 42 in. x 43 in. @ \$250, with mechanism . . . . .	500.00	
1 idle pulley for Eng. belt, 42 in. x 43 in. . . . .	150.00	
2 binder pulleys for wheel drive, 36 x 26, @ \$150 . . . . .	300.00	
	<u>\$3,375.15</u>	
Labor, putting on pulleys, freight, etc. . . . .	500.00	\$3,875.00

## FOUNDATIONS FOR SHAFTING.

186,000 brick in piers with flaggers, etc., laid up complete . . . . .	2,500.00
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## OFFICE AT STATION.

1 roll-top desk . . . . .	\$25.00	
1 flat-top desk . . . . .	10.00	
1 revolving office chair . . . . .	3.00	
2 cane-seat chairs . . . . .	4.00	
1 letter-copying press and cabinet . . . . .	20.00	
1 clock . . . . .	10.00	
1 small draughting table . . . . .	15.00	
1 relay for telephone . . . . .	2.00	
1 large tracing of city map . . . . .	3.00	92.00

## MATERIAL IN STORE ROOM, SECOND STORY OF MAIN BUILDING.

1 portable platform Fairbanks scale, No. 10 $\frac{1}{2}$ , 1,000 lb. . . . .	\$30.00	
1 arc lamp testing rack with 25 switches . . . . .	25.00	
1 incandescent lamp testing bank; 40 Edison sockets (old style), with cut-outs . . . . .	40.00	
2 switches, 2 resistance boards, complete . . . . .	10.00	
1 back-gear lathe, 7 in. centre, 6 in. bed, 3 chucks and counter shaft . . . . .	300.00	
1 hoisting crane in dynamo room, with 2 $\frac{1}{2}$ ton chain fall . . . . .	75.00	
1 heavy truck for machine, etc. . . . .	10.00	
1 small truck for boxes, etc. . . . .	3.00	
1 crab . . . . .	60.00	\$553.00

## TOOLS.

1 B. & S. wire gauge, transferred from switch-board appliances . . . . .	\$2.00	
3 medium size bench vises . . . . .	15.00	
2 3-ft. steel bars . . . . .	1.00	
1 nail puller . . . . .	2.00	
1 pair 9-in. cutting pliers . . . . .	1.00	
1 splicing clamp . . . . .	1.00	
1 pair pipe tongs $\frac{1}{2}$ in. . . . .	1.00	
1 monkey wrench 12-in. . . . .	\$1.50	4.00
2 monkey wrenches 15-in. . . . .	1.30	
2 monkey wrenches 20-in. . . . .	2.20	
2 machinist's hammers . . . . .	1.00	
1 claw hammer . . . . .	.50	
2 soldering irons . . . . .	1.00	
1 tinner's fire pot . . . . .	2.00	
2 gasoline torches . . . . .	2.50	
1 clamp for guy wire . . . . .	.50	
1 pair climbers . . . . .	1.50	
2 bit braces . . . . .	3.00	12.00
9 auger bits . . . . .		4.00
1 " " $\frac{1}{8}$ short . . . . .	\$1.19	
1 " " $\frac{1}{8}$ short . . . . .	.19	
1 " " $\frac{1}{8}$ short . . . . .	.15	
3 " " $\frac{1}{8}$ long . . . . .	1.80	
3 " " $\frac{1}{8}$ long . . . . .	1.50	
1 10-in. draw shave . . . . .	.90	
1 auger 2 in. . . . .	.80	
1 auger 1 $\frac{1}{8}$ in. . . . .	.70	
1 auger 1 $\frac{1}{2}$ in. . . . .	.60	
1 auger 1 $\frac{1}{4}$ in. . . . .	.50	
6 coal shovels . . . . .	4.50	
4 digging spades . . . . .	4.00	

5 digging spoons . . . . .	\$5.00
2 iron tamping bars . . . . .	3.00
1 wooden tamping bar . . . . .	.50
1 pipe tamping bar . . . . .	1.00
2 pole carrying hooks . . . . .	5.00
2 cant hooks, without handles . . . . .	3.00
1 dead man, with extra head . . . . .	2.00
2 cast steel digging bars . . . . .	3.00
2 limb trimmers . . . . .	3.00
1 axe . . . . .	.75
3 pike poles, with pikes . . . . .	2.25
13 pike poles, without pikes . . . . .	6.50
1 fork pole, for raising mast arms . . . . .	.75
4 step ladders, for trimmers, 6 and 8 ft. . . . .	7.50
1 ladder, 6 ft. . . . .	.60
1 " 13 " . . . . .	1.30
2 " 21 " . . . . .	4.20
2 " 21 " new . . . . .	4.20
1 " 25 " . . . . .	2.50
1 push cart (in wheel house) . . . . .	2.00
2 hand lines, 65 and 85 ft. = 150 ft. . . . .	1.00
1 pair pliers, 7 in. . . . .	1.35
1 pair pliers, 8 in. . . . .	1.90
2 oil lanterns . . . . .	2.50
1 cloth tape, 75 ft. . . . .	1.20
1 splicing vise . . . . .	1.50
1 strap and vise . . . . .	2.50
1 swivel hook, 7 in. . . . .	.50
2 heavy hooks for lifting armature . . . . .	.50
1 leather lifting-harness for armatures . . . . .	3.50
1 armature chain, hooks, and triangle . . . . .	1.00
1 heavy chain, 17 ft., 6 in. long . . . . .	3.50
1 " " 6 " 4 " " . . . . .	1.25
2 " " each 7 ft. long, with hook and ring . . . . .	3.00
90 ft. Manila rope, $\frac{1}{2}$ in., 6 $\frac{1}{2}$ lbs. @ 12c. . . . .	.78
130 ft. Manila rope, $\frac{3}{4}$ in., 21 $\frac{1}{2}$ lbs. @ 12c. . . . .	2.58
1 set 3 $\frac{1}{2}$ -in. iron blocks, double and triple sheave . . . . .	4.15
1 set 6-in. wooden blocks, double and triple sheave . . . . .	5.40
1 Lightning screw plate set, size o . . . . .	5.00
1 naphtha soldering pot . . . . .	2.50
2 gas light stands . . . . .	1.00
	<u>\$160.00</u>
TOTAL . . . . .	<u>\$321,643.00</u>

## DETAILS.

A.—1, 2, 3.

B.—1, 2.

C.

D.

A—1.

## WHEEL-PIT AND TAILRACE.

Earth excavation . . . . .	32,333 cu. yds.	\$.50	\$16,167.00
Canal wall removed; rubble dry except 12 in. on face, laid in cement . . . . .	343 " "	2.00	686.00
Gravel puddling . . . . .	1,258 " "	1.00	1,258.00
Stone filling grouted, under back gate . . . . .	50 " "	4.50	225.00
Back filling, puddled . . . . .	18,389 " "	.25	4,597.00
Canal wall relaid, dry rubble ex- cept 12 in. on face laid in ce- ment <i>dry</i> . . . . .	105 " "	4.00	420.00
Rubble in cement . . . . .	1,022 " "	6.50	6,643.00
Rubble in cement tailrace . . . .	912.5 " "	6.50	5,831.00
Cut granite masonry . . . . .	7.6 " "	25.00	190.00
Brick work in cement :			
Wheel-pit . . . . .	90,850 brick @ 12.		1,198.00
Tailrace . . . . .	925,684 brick @ 12.		11,108.20
Hemlock timber . . . . .	61,075 6 ft. B. M. 16 & 1		1,038.30
Hemlock plank, 4-in. T. & G. . . .	77,376 " " 16 & 1		1,315.40
Soft pine plank, 2-in. T. & G. . .	28,814 " " 30		864.42
Sheet piling, spruce, T. & G. . . .	19,156 " " 25		479.00
Total transferred to page 366 . . . . .			<u>\$52,120.00</u>

A—2.

## HEAD GATES AND RACKS.

Earth excavation . . . . .	1,085 cu. yds.	\$.50	\$542.50
Canal wall taken down; dry rubble except 12 in. on face laid in cement . . . . .	262.5 " "	2.00	525.00
Gravel puddling . . . . .	207 " "	1.00	207.00
Back filling . . . . .	744 " "	.25	186.00
Canal wall relaid; dry rubble except 12 in. on face laid in cement . . .	71.5 " "	3.00	214.50
Rubble masonry laid in cement . .	154.2 " "	6.00	925.20
Brick work in cement . . . . .	4,977 brick	12.00	59.72
Sheet piling, hemlock T. & G. . . .	7,252 5 ft. B. M.	.25	182.00

Hemlock timber in head gate T.

& G. . . . .	3,906 8 ft.	" 16 & 1	\$66.00
Hemlock plank T. & G. . . . .	2,632 5 ft.	" 16 & 1	45.00
White pine plank T. & G. . . . .	912	" 30	27.00
Southern pine . . . . .	3,800	" 43	163.00
Iron rack 48 ft. x 12½ ft. (in place) . . . . .	18,000 lbs.	.04	720.00

Total transferred to page 366 . . . . . \$3,863.00

## WOODEN GATES (made up).

2 gates, 12 x 10 ft., ½ x 6 in. Southern pine, 1,628 ft. B.M., 25 and 5 . . . . .	\$50.00
6 iron rods, ¾-in. dia., 12 ft., 11 in. long, nuts and washers, 156 and 10 lbs. = 166 lbs. @ .06 . . . . .	10.00
Labor, etc. . . . .	10.00

Total transferred to page 366 . . . . . \$70.00

## HEADGATE MACHINERY.

4 shafts, 2, 2½ in. dia., 16 ft., 10 in., with boxers and hangers . . . . .	\$120.00
2 shafts, 1½ dia., 11 ft., 3 in., with boxes and hangers . . . . .	16.20
8 sets racks and pinions, rack No. 857, Hol. M. Co., 50 in. long, 5½ in. wide, 25 teeth . . . . .	450.00
Pinion No. 856, 7½" dia. 11 teeth, 5½ face Hol. Mach. Co. . . . .	20.00
2 wicket gates, 18 in. x 16 in., No. 85 Hol. M. Co. . . . .	10.00
16 iron rolls, 4 in. dia., 3 in. long, with stands . . . . .	15.00
Iron guides for gates . . . . .	10.00
4 sets worm gears, gear equals 23.5 x 3 in. face worm, 7.5 x 375 and 376 Hol. Mach. Co. . . . .	50.00
4 hand wheels, 24 in. dia. . . . .	\$5.00
2 shafts, 4 ft. 9 in., laid; 2 in. dia., with boxes (6) . . . . .	15.00
2 stands, bolted to stonework, \$120 Hol. Mach. Co., 1,130 @ .05 . . . . .	57.00
	<u>\$783.00</u>
Add miscellaneous . . . . .	117.00

Total transferred to page 366 . . . . . \$900.00

## A—3.

## PENSTOCKS.

2 iron penstocks, 10 ft. dia., 36½ ft. long, ⅞ in. metal, 43,540 @ .03 . . . . .	\$1,306.00
4 iron rings, 10 ft. 1 in. dia. (inside), ¾, iron x 4 in., 32 bolts, 1,310 @ .03 , . . . .	40.00
2 vent pipes, 6 in. dia., 7 ft. long, 333 lbs. @ .03 . . . . .	10.00

Total transferred to page 366 . . . . . \$1,356.00

## FENDER IN FRONT OF HEADGATE.

Southern pine, 947, 1 ft. B. M. @ \$30 . . . . .	\$28.41
Spruce, 263, 6 ft. B. M., 16 and 1 . . . . .	4.50
Spruce plank, 2 in., matched, 406, B. M., 16 and 1 . . . .	6.90
Total transferred to page 366 . . . . .	<u>\$40.00</u>

## B—1.

## STEAM PIPING FOR ENGINES AND BOILERS.

## BOILERS TO ENGINES.

40 ft. steam pipe, 12-in. diam. . . . .	\$2.10	\$84.00
40 ft. steam pipe, 10-in. diam. . . . .	1.43	70.00
32 ft. — 9-in. steam pipe, 8-in. diam. . . . .	.89	29.20
16 ft. — 8-in. steam pipe, 4-in. diam. . . . .	.57	9.50
1 L, 12 in. . . . .	7.50	7.50
4 — 12-in. flanges . . . . .	2.25	9.00
1 — 12-in. blank . . . . .	2.50	2.50
2 — 12 x 8-in. flanges . . . . .	2.25	4.50
1 — 12-in. T 10 in. . . . .		12.50
10 in. 12-in. T . . . . .		
1 — 8 in. + 8 in. . . . .		17.50
12 in. + . . . . .		
15 — 10-in. flanges . . . . .	1.50	22.50
5 — 10-in. Ls. . . . .	5.00	25.00
2 — 10-in. flanged gate valves . . . . .	29.25	58.50
4 — 8-in. Ls. . . . .	2.50	10.00
5 — 4-in. Ls. . . . .	.75	3.75
3 — 8-in., T 8 in. . . . .	4.25	12.75
4 in. . . . .		
5 — 4-in. flanges . . . . .	.21	1.05
5 — 4-in. globe valves . . . . .	12.00	60.00
Brackets for supporting 12-in. pipe . . . . .		22.00
Hangers for supporting 12 and 8-in. pipe . . . . .		10.00
		<u>\$471.75</u>
Freight and erecting . . . . .		<u>500.00</u>
		<u>\$972.00</u>

## EXHAUST.

18 ft. 6 in. cast iron flanged pipe, 12 in. diam., 5,080 . . . . . @ .05	\$255.00
21 ft. 7 in. wrought iron pipe, 12 in. dia. . . . . "	2.10 45.20
9 ft. wrought iron pipe, 14 in. dia. . . . . "	2.80 25.20
4 wrought iron flanges, 14 in. dia. . . . . "	3.00 12.00
9 12-in. Ls. . . . . "	7.50 67.50
9 flanges, 12 in. . . . . "	2.25 20.20
2 12-in. Ts. . . . . "	11.25 22.50



## FOSTER'S SCHEDULE—ELECTRIC.

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2 12-in. valves . . . . .	" 40.00	\$80.00	
1 — 14-in., T. 12 in. 12 in. T . . . . .		15.00	
16 ft., 6 in. of 16 in. exhaust pipe above heater @ 3.50		57.60	
		<u>\$600.20</u>	
Freight and erecting . . . . .		500.00	<u>\$1,100.00</u>

## B—2.

## FEED PIPING.

22½ ft of 3-in. pipe . . . . .	\$41	\$9.20	
34 ft. of 2½ in. " . . . . .	.31	10.50	
12½ ft. of 2 in. " . . . . .	.21	2.60	
45 ft. of 1½ in. " . . . . .	.15	6.75	
5 valves 1½ in. . . . .	1.10	5.50	
5 valves 2½ in. . . . .	3.40	17.00	
5 checks, 1½ . . . . .	.70	3.50	
		<u>\$55.05</u>	
Freight and labor erecting . . . . .		50.00	\$105.00

## BLOW OFF.

117 ft. 2 in. pipe inside and outside of building . . . . .	\$21	\$24.57	
5 Ts., 45 degrees, 2 in. . . . .	.18	.90	
5 flange unions, 2 in. . . . .	.30	1.50	
5 P. & C. asbestos cocks, 2 in. . . . .	1.75	8.75	
10 2 in. Ls. . . . .	.15	1.50	
5 Ts., 2 in. . . . .	.18	.90	
		<u>\$38.12</u>	
Freight and labor erecting . . . . .		40.00	78.00

## CANAL SUCTION PIPE.

146 ft. pipe, 4 in. dia., outside of building . . . . .	\$57	\$83.22	
43 ft. pipe, 4 in. dia. . . . .	.57	24.51	
9 ft. 3 in. pipe, 2½ in. dia. . . . .	.31	2.87	
2 Ls., 2½ in. . . . .	.24	.48	
1 — 2½-in. T 4-in. . . . .	.87	.87	
		<u>\$111.95</u>	
Freight and labor erecting . . . . .		75.00	<u>\$187.00</u>
			<u>\$370.00</u>
740½ sq. ft. of cement pipe covering @ 22c. . . . .			<u>\$163.00</u>

Totals on steam piping transferred to page 373.

## C.

## MACHINERY AND SUPPORTS IN WHEEL-PIT.

2 large and 2 small wheel cases . . . . .	28,230 lbs.	
4 draft tubes . . . . .	5,544	
Top and bottom of cases, cast . . . . .	53,127	
8 bottom girders, cast . . . . .	36,000	
8 top girders, cast . . . . .	34,000	
8 lower cross girders, cast . . . . .	12,000	
16 posts, wrought . . . . .	4,550	
16 foot plates . . . . .	8,830	
16 sets nuts and washers, wrought . . . . .	384	
9 lower, bearing yokes . . . . .	6,800	
4 box frames . . . . .	2,250	
2 short cross yokes . . . . .	770	
4 top yokes . . . . .	6,700	
	<u>199,185 lbs. @ 5c.</u>	<u>\$9,959.00</u>
4 pedestal boxes, 6 in., with bolts . . . . .	\$21.00	84.00
4 pedestal boxes, 5 in., with bolts . . . . .	14.00	56.00
4 bevel core wheels . . . . .	235.00	940.00
4 bevel cut pinions . . . . .	125.00	500.00
Total transferred to page 373 . . . . .		<u><u>\$11,539.00</u></u>

## D.

## ITEMS NOT LISTED.

Service connections:		
256 city arc lamps . . . . .	\$2.00	\$512.00
112 commercial arc lamp services . . . . .	5.00	560.00
163 commercial incandescent lamps . . . . .	5.00	815.00
76 commercial motors . . . . .	5.00	380.00
607		
Total transferred to page 370 . . . . .		<u><u>\$2,267.00</u></u>

The above items are in addition to charges made on same items elsewhere.

SUMMARY  
OF THE  
DEPRECIATION OF THE ELECTRIC PLANT  
(During the past seven years.)

MILL SITE.

There is no *depreciation* on the mill site, but rather a considerable *appreciation*.

BUILDINGS, HEAD-GATES, PENSTOCKS AND TAILRACES.

The values as shown are for the buildings, etc., as of 1898.

BOILER HOUSE MACHINERY AND ELECTRICAL PLANT.

It is assumed that the items in this list will depreciate faster than any of the others named, and they are put in here at the "Structural Value" as listed. Such "Structural Value" is made on prices of February, 1898, and thus full allowance is made for depreciation due to change in price, and it is only necessary to make allowance for such wear and tear as there may be outside of common repairs. Table A therefore includes items of which the average life is assumed to be 20 years,

TABLE A.

		<i>Annual Deposit.</i>	<i>Amount for 7 Years.</i>
Boiler House Machinery . . . . .	\$7,175.00	\$241.00	\$1,900.00
Dynamos . . . . .	20,920.00	702.00	5,550.00
Spare parts, armatures, etc. . . . .	1,350.00	45.00	355.00
Switchboards, etc. . . . .	3,359.00	113.00	893.00
Transformers . . . . .	1,005.00	34.00	268.00
Arc lamps . . . . .	14,452.00	486.00	3,840.00
Meters . . . . .	815.00	27.00	213.00
Service appliances . . . . .	3,257.00	109.00	866.00
Poles, etc. . . . .	9,928.00	334.00	2,640.00
Wire . . . . .	11,432.00	385.00	3,040.00
Pole line appliances . . . . .	885.00	29.00	229.00
	<u>\$74,578.00</u>	<u>\$2,505.00</u>	<u>\$19,794.00</u>

STEAM MACHINERY, WATER WHEELS, SHAFTING, ETC.

This part of the plant has a long life, and, when erected in the best manner and of the best material, as this one is, depreciation will be very small. It is fair to assume an average life of 40 years for the items in Table B.

TABLE B.

		<i>Annual Deposit.</i>	<i>Amount for 7 yrs.</i>
Steam piping . . . . .	\$2,605.00	\$27.00	\$216.00
Engine room machinery . . . . .	\$15,000		
Deduct foundations . . . . .	3,500	121.00	957.00
Wheel house machinery . . . . .	17,060	179.00	1,410.00
Machinery in basement of main building, shafts, belts, etc. . . . .	22,880.00		1,900.00
	<u>\$54,045.00</u>	<u>\$568.00</u>	<u>\$4,483.00</u>

## OFFICE FURNITURE, STORE ROOM MATERIAL, TOOLS, ETC.

These items are practically stock, and are subject to little depreciation other than actual replacement, which will in most cases be chargeable directly to Expense (Repairs).

## METHODS OF HANDLING DEPRECIATION.

The treatment of depreciation is subject to many variations, and as regards electrical plants has always been a matter of dispute,—many, and it may be said, the great majority of electrical companies paying no attention at all to such charge. Of course this can only result in an impairment of capital eventually, unless new plant, renewing old, is charged directly to expense when bought, and this is at times burdensome for any one year.

One method is to charge off of the book value enough each year to entirely cancel the original cost in a given number of years.

Another method is to charge off annually a certain percentage of the total value as shown by the accounts.

Another method, and the one that will be used in these computations, is to set aside annually as a sinking fund for renewals, a sum that, placed at compound interest, will in a given number of years entirely renew the plant.

The annual amount necessary to set aside for a sinking fund for final renewals per \$1,000 will be as follows:—

For 20 years @ 3% . . . . .	\$37.22
" " " 4% . . . . .	33.58
" " " 5% . . . . .	30.24
For 40 years " 3% . . . . .	13.26
" " " 4% . . . . .	10.52
" " " 5% . . . . .	8.28

In seven years an annual deposit of \$1 will amount to the following:

At 3% . . . . .	\$7.66
" 4% . . . . .	7.90
" 5% . . . . .	8.14

Selecting 4% as a fair basis for the purpose, the annual sinking fund for renewals will be as follows:—

# FOSTER'S SUMMARY OF DEPRECIATION—ELECTRIC. 285

Table A . . . . .	\$74,578.00 @ \$33.55=	\$2,504.33
Table B . . . . .	54,045.00 @ 10.52=	568.58
Total addition to sinking fund for final renewals	<u>\$128,623.00</u>	<u>\$3,072.91</u>

Amount of annuity of \$3,072.91 for 7 years; \$3,072.91 @ \$7.90 (4% basis)  
\$24,276.70.

The expert examination of the books of the Holyoke Water Power Company Lighting Department, by Humphreys & Glasgow, shows the following:—

Total income for year ending June 1, 1898 . . . . .	\$56,599.55
Total expense of operation, assuming 8 mill powers used and paid for at the regular rate without rebate . . . . .	<u>33,381.34</u>
Net income from operation . . . . .	\$23,218.21
Deduct amount of renewal fund . . . . .	<u>3,072.91</u>
Net income on which to base earning value . . . . .	<u>\$20,145.30</u>

Capitalized value of earnings @ 4% . . . . .	\$503,630.00
Capitalized value of earnings @ 5% . . . . .	\$402,904.00

Estimated gross structural value of electric plant from the Summary, page 365 . . . . .	\$352,526.00
Deduct amount of renewal fund . . . . .	<u>24,276.00</u>
Net structural value of plant February, 1898 . . . . .	<u>\$328,250.00</u>

If the City of Holyoke should undertake to build a new plant independently then, assuming that it could be built complete ready for business in one year and giving no consideration to the fact that it would take some time to get business that would return an income, then the one year's income as at present could be considered as a part of the value of the plant itself, and this would nearly offset the charge for depreciation:—

Net income from operation, as above . . . . .	\$20,145.30
Net structural value of plant . . . . .	<u>328,250.00</u>
Actual structural value of electric plant . . . . .	<u>\$348,395.30</u>

Q. I see you put the mill site in, \$72,000. By the way, these pages are numbered at the bottom right hand corner? A. Yes, sir.

Q. Was that your valuation? A. Yes, sir.

Q. You put the valuation of that at \$72,000. What does that include? A. That is the land, and the privilege of drawing water from the canal, at a rental.

Q. For how much? A. \$1500.

Q. Per mill power? A. Per mill power.

Q. On page 1 are all the subjects of valuation comprehended? A. Practically so. That is the best assemblage of the matter that I could make, and I think they are divided, and are summed up, and made so in a convenient way.

Q. Then upon some of the following pages you treat in detail of each of the subjects embraced in the total valuation on page 1? A. Yes.

Q. In your structural valuation of \$328,250, is there anything included for engineering? A. Yes.

Q. How much? A. Why, the ordinary sum. You will notice near the bottom "add 10 per cent. for contingencies and engineering." That can be divided ordinarily, 5 per cent. for each.

Q. Whether that is a fair allowance for engineering and contingencies? A. Yes, sir. It is considered the standard sum used everywhere. I think the contingencies part of it is plenty small enough.

Q. What do you mean? A. I never knew of a plant yet that was built on its estimate, even with 5 per cent. added for contingencies.

Q. You say that should be added to the mere physical value? A. Yes,—5 per cent. for contingencies and 5 per cent. for engineering; 10 per cent. covering both.

Q. Then I see you have added also \$6000 for interest during construction for an average of half the period, estimated at one year; 6 per cent. for six months on \$200,000? A. Yes, sir.

Q. Why do you do that, and take that sum? A. Why, it is sort of a guess. I considered it perfectly fair that interest on part of the cost, at least, during construction, should be allowed, and it is a little difficult to say just how much, and it is in my opinion fair to take the amount as shown.

Q. Is there anything in there for "Builders' Liability Insurance?" A. No, not at all.

Q. You have not added that? A. No, sir.

Q. Have you in mind what that sum would be? A. No, sir. It would be something; a very fair addition to the amount I have; but I didn't consider it at all.

Q. Neither in this sum have you added anything for the profits lost during a rebuilding of the plant? A. No, sir; not at all.

Q. How long, in your opinion, would it take to build and get the business so it would be profit-bearing? A. That is a very difficult question to answer.

The CHAIRMAN. In Holyoke, of course. Taking into account the population?

Q. Everything—conditions, that existed? A. Why, from three to five years, I should say, would be a good estimate. It does not take more than a year to build a plant; but working up the business is a much longer operation.

Q. I mean, how long would it take until you got the business so that it returned some profit? A. Under the ordinary course taken in those matters, I should say five years.

By the CHAIRMAN.

Q. Have you any judgment in reference to the length of time it would take to obtain the number of lights that sold here by this Company? A. That is the opinion I have just given relating to that. It is a matter in the early days of very slow growth. The growth later on is a little faster.

By Mr. BROOKS.

Q. You understand my question not to mean the time that would elapse before they could obtain a profit of \$20,000 a year, but the time that would elapse before the plant would begin to render any profit? A. Yes; I understood it that way. If I may modify that slightly, it would be possible to obtain some profit,—and this is simply conjecture—if it were possible to obtain a large number of city lights in a first contract, and only under those conditions.

Q. You didn't allow anything here in your structural value for working up the business, soliciting, or canvassing? A. No, sir. I have not considered that at all.

Q. Your valuation of the buildings is found upon what pages—3, 4 and 5? A. Yes; and including 6, which is simply electric light wiring in those buildings.

Q. You find the value of the buildings to be how much? A. Do you refer to the items on page 1 in that list, in which the buildings are included in list with wheel-pit, etc.?

Q. No, covering pages 3, 4, 5 and 6? A. If you will pardon me a minute, I will add those. I don't think I have those in separate additions.

Q. I thought you had. Perhaps you had better add them. A. The wheel-house?

Q. Would it be \$102,007? A. I have forgotten. It will take but a moment to add it. Would you include in that the connecting tunnels between the wheel-house and main building?

Q. Yes? A. But not the wheel-pit and tail-race.

Q. Those you have under separate headings? A. The fifth item on page 1, or sixth item. The buildings, including the wheel-house, boiler-house, engine-house and engine foundations, main building, including shaft foundation, and connecting tunnels, amount to \$56,240. It seems to me a little difficult to separate the wheel-pit and tail-race from that, for the reason the wheel-pit is practically the foundation of the wheel-house.

Q. Add those in, and then what do you get for the total including the wheel-pit and tail-race? A. \$108,360. If you will pardon me, add in \$153 for wiring.

Q. Then what do you make the total? A. \$108,513.

Q. Will you be kind enough to turn to page 6. What does \$102,007 comprehend in that valuation? A. If you will pardon me on that. The sum of these items here, will not bear any relation to the first few pages, because of the main building and engine room, in which I made a readjustment of the figures. The sums included in page footings are not always correct. In carrying through with the typewriter some changes were made in the wording, so they will not in all cases be correct. I expected in printing that would be attended to, so made no change here at all.

Q. Should there be any change made on page 6? A. Yes.

Q. Well, let's have that made now, so we will understand it. Have you left out from your estimate \$108,513, the head-gates,



penstocks, fenders, stack and breeching? A. Yes, sir. I have left those out, because you asked specifically for the buildings.

Q. Including the head-gates, penstock, fenders, stack and breeching, how much were the values? A. \$122,715. This is the value of the buildings.

Q. Does your total on page 6 of \$102,007 include all? A. No. I made a readjustment of my figures soon after I made up this report, and I did not change the footings, because in the first place it would involve a very considerable amount of labor, not only in this but other papers which I could not get at, and I just put it into summaries as indicated on page 1.

Q. Those are the correct figures? A. Yes, sir. And if you pay no attention to the page footings whatever, the rest of it will come the same.

Q. So far as the details are concerned? A. No change whatever.

Q. In the detail, there is no change? A. None whatever.

Q. So that the total value of the buildings that you have comprehended under the terms of buildings, head gates, penstocks, fender, wheelpit, boilerhouse, stack and breeching, is \$122,715? A. Yes, sir.

Q. Did I understand you to say you took those buildings as you found them, and put a value on them as of the time you saw them? A. Yes, sir.

Q. In your opinion, that is a fair market value? A. Yes, sir.

Q. Now, you begin to take up the physical mechanisms of this plant on page 7, do you not? A. Yes.

Q. In the main building you start. I see that there is a word dynamos and then opposite the word arc? A. Yes.

Q. To what does that word arc apply, to this column of 20's? A. The column of 21 Schuyler machines.

Q. Those two of course are general? A. Yes, sir. Dynamo refers to all the items on that page, and arc is supposed to comprehend the amounts immediately following. The typewriter placed the name at that particular point.

Q. Where should that be? A. Why, it should go on a line under dynamo. Dynamo is the main heading, and arc is the sub-heading.

Q. So that the arc should be under the dynamo? A. Yes, should be there.

Q. You find in that main building how many Schuyler machines? A. 21.

Q. Are they all in this main building, or is one in another place? A. One is in another place.

Q. Whereabouts is that? A. It is in the head-gate house, as I remember.

Q. But the total number of Schuyler machines is 21? A. Yes, sir.

Q. What are the capacities of those various machines? A. As listed here, one 16-light machine, of 9.6 amperes capacity, or current capacity; four 25-light machines, the same; eight 30-light machines, the same; two 50-light machines, the same; one 40-light machine of 7 amperes, and five 50-light machines of the same capacity.

Q. Your column of 20's means what? A. \$20 per lamp capacity.

Q. \$20 per light? A. Yes, sir.

Q. That is, one 16-light machine is worth \$320, or \$20 per light? A. Yes, sir.

Q. And so all through? A. Yes, sir.

Q. And what do you include in these dynamos besides the particular mechanisms themselves? A. Well,—

Q. Regulators? A. Following that list you will see 16 later style regulators and five old style regulators. Those are included in the price \$20 per light.

Q. And you valued those at \$14,920? A. Yes, sir.

Q. Including the 16 later style regulators, and five old style regulators? A. Yes.

Q. In what condition did you find those dynamos. A. In very good condition, as far as it was possible to judge by a rather close examination of them.

Q. I will ask you whether in your examination of this plant you examined minutely into the details? A. Why, I do not know as you could describe it as exactly as minutely, but as closely as it was possible under the circumstances.

Q. Do I understand you to say that it was the then value of those dynamos? A. No. Later on you will find that I deducted from this value.

Q. Something for depreciation? A. Yes, sir.

Q. Yes, we will come to that. Now, you have next under the heading of Power and Incandescent, certain mechanisms?

A. Yes.

Q. Now, I would like to have you take that first one, "two Edison Bi-polar type, 12-30 K. W." A. Those are Edison machines. Bi-polar type is a description of the style of machine used by the Edison electric light companies up to a few years ago. The 12 is simply a designating number of the machine, that is the size number, and the 30 and the K. W. is the capacity in kilowatts.

Q. Those are dynamos? A. Yes, sir, those are dynamos.

Q. Will you explain the next item? A. Well, the 110-volt dynamos, D. C. means simply direct current, and they are put in in this valuation at \$25 per kilowatt of out-put.

Q. Well, this 110-volt dynamos is really two Edison machines? A. Yes. The description is found along there, as there was not room to write it in on one line.

Q. \$1500 for the two? A. Yes.

Q. Next? A. One general electric 120 kilowatt alternator, 1040 volts set up.. The set-up refers to the machine and not to the volts, by the way. \$2000.

Q. "Set-up" should be in brackets? A. Yes, sir.

Q. Yes; the next? A. That means one Edison bi-polar 100 K. W. 500 volts, 130 horse power generator, at \$20 per kilowatt.

Q. Is that 130 horse power a power generator? Is that the proper term for it? A. Yes.

Q. At \$20 per what? A. Per kilowatt.

Q. That is \$2000, making the total \$5500? A. Yes, sir.

Q. Then you have an item "Freight and Labor, \$500"? A. Yes, sir.

Q. What does that mean? A. Well, it is an amount that I have placed in there as covering the freight and boxing and setting up such parts as are not stated, in the miscellaneous item, that go to make up the cost of the plant in complete running order.

Q. Then your total amounts to how much? A. \$20,920.

Q. Then on page 8 you take up Armatures? A. Yes, sir.

Q. I see you have Extra Armatures? A. Yes.

Q. What do you mean by that. A. The armature is the revolving part of these particular machines, of the dynamos, and is the part which is liable to damage, or more so, I may say, than any other part of the machine, and it is always good policy to keep one of each size on hand.

By Mr. GOULDING.

Q. Damage by wear? A. No, damage by the current. They sometimes break down the insulation, and the current jumps across and burns off the wires, and destroys the utility of the machine for the time being.

By Mr. BROOKS.

Q. So these are armatures in addition to those that were in the machines when you valued them? A. Yes.

Q. And you put in the total extra armatures, \$1350? A. The first three items only are armatures.

Q. \$950? A. \$950, yes.

Q. Then you take up the subject of Exciters? A. One exciter for the 120 kilowatt alternator.

By the CHAIRMAN.

Q. What is it? A. It is a small dynamo which furnishes current for the magnetizing of the field, so called. In other words, giving the machine life. The second line, IB type, is simply the shop description of the machine.

By Mr. BROOKS.

Q. What does I. B. stand for? A. I don't know. It is a term used by the General Electric Company.

The CHAIRMAN. An egotistical term.

The WITNESS. It certainly is in this case, because nobody else knows what it is. In the next matter T-H means Thomson-Houston, 500 volts, 7 1-2 horse power.

By Mr. BROOKS.

Q. And you have freight and labor there, \$75? A. Yes.

Q. What is that? A. Well, it is a general addition. I put in something for freight and labor on the machine.

Q. Does that mean a setting up of the machine? A. Yes, getting it into place, and fastening it down.

Q. And getting it into adjustment? A. Yes, sir.

Q. Then, on page 9 you have Switchboards and Appliances? A. Yes, sir.

Q. What is the first item, will you be kind enough to read

it? A. One 20-circuit T-H arc plug-board, Form C, 25 panels of 4 circuits each, in place, \$1500.

Q. That T.-H. stands for Thomson-Houston? A. Yes.

Q. And what is Form C? A. That is a shop designation only, a catalogue designation, you might say.

Q. Then your next is 20 Schuyler arc ammeters? A. Yes.

The CHAIRMAN. I would like to know what that is.

The WITNESS. It is a current indicating device, otherwise an instrument for indicating the amount of current flowing in an electrical circuit. It is a modification of a galvanometer. It is an ampere meter. It measures amperes.

Q. Be kind enough to explain how this operates. A. I cannot. The Schuyler ammeter is one that is not open to inspection.

Q. Mr. Matthews said he would like to have me ask. A. I can tell how it can be done.

Q. How? A. The ammeter, in its simplest form, perhaps, is a core of iron, of soft iron, drawn into a coil of wire, of insulated wire. That coil must be opposed by some force, like a coiled spring, or by a weight, and the more current that there is going through the coil of wire, the harder it will pull on this core, and the further in it will be sucked, of course with an indicating pointer on the end of the core that will by its movements show the change in the current.

Q. Well, does it show the amount of the current? A. The rate of flow of the current.

By the CHAIRMAN.

Q. What is it for? A. To indicate the amount of current flowing in the circuit. They are more reasonably called nowadays current indicators.

By Mr. BROOKS.

Q. Now, I notice down below a few items; down on this same page. You have one ammeter or current indicator on 7 1-2 horse power motor? A. Yes, sir.

Q. Is that the same kind of ammeter? A. No, it is not the same kind of ammeter. It is another type, but it is for the same purpose exactly.

Q. It indicates the current? A. Yes, sir.

Q. What is this next one? A. One Ammeter, Whitney

Portable. It is an instrument used for indicating the flow of the current, and it is made portable, so that it can be carried from one point to another.

Q. The next item below that is, a Volt Meter, Thomson-Houston, A. C., what is that, alternating current? A. Yes, sir.

The CHAIRMAN. Mr. Brooks, let us consult for a minute or two. I have looked over this schedule. It evidently contains the product of a good deal of industrious application, and it also contains a great many titles and designations which this witness, no doubt, is capable of giving, but to save you the trouble of examination, is there not some method by which we could take these statements and refer to them later?

Mr. BROOKS. Do you mean by that to have him take this and carry out his characters in English?

The CHAIRMAN. No, I mean that he can testify—for instance, Mr. Turner just indicated to me that he thinks he can pick out most of them. What we are trying to avoid—I suppose you are—is the filling of the record too much with a description of these technical terms.

Mr. BROOKS. I would just as soon it would not go into the record.

The CHAIRMAN. If it does not go into the record it does not do us any good.

Mr. BROOKS. No, except that you could carry it in your mind.

The CHAIRMAN. Thank you, I wish I might.

Mr. BROOKS. I know, of course, you would have no difficulty in so doing.

The CHAIRMAN. I thank you for that statement. I have a great mind. My suggestion would be, of course many of these things are entirely unintelligible to us. It seemed to me that if the witness were to state to us that his abbreviations and expressions are sufficient so that we can find the meaning of them elsewhere, giving us some general idea of the uses the appliances are put to, it might perhaps be of just as much avail as going into detail.

Mr. BROOKS. I should be very glad to shorten the examination.

The CHAIRMAN. I am very much interested in this.

Mr. BROOKS. It seemed to me as I read it over that there should be some explanation for these characters.

The CHAIRMAN. I think so, but if he can refer to them—However, go your own gait. We are not impatient over it. We thought possibly we might help you.

Q. What is the difference between a volt meter and a pressure indicator? A. One gives a direct measure of volts, or a reading of volts, and the pressure indicator is a volt meter with but one point on it, the pointer of which is supposed to be kept adjusted to that one point, as indicating that the pressure in the circuit is correct.

Q. Does not your pressure indicator give you the volts? A. No, it simply has one point on it, and a pointer sways back and forth from that as the current or pressure in the circuit varies, and the attendant is supposed to adjust the machinery so that the pointer will be as near as possible on this one spot all the time. A volt meter is a pressure indicator, but a volt meter, as the term is used here, is a measure—that is, a meter—that we can use for taking the different pressures, while a pressure indicator itself is simply a volt meter used for indicating one pressure.

By Mr. GOULDING. A volt meter is a pressure indicator, but a pressure indicator is not necessarily a volt meter? A. They are both volt meters.

By Mr. BROOKS.

Q. Which is the recording? A. They do not either one record.

The CHAIRMAN. I want to come back to the original proposition.

Mr. BROOKS. Very well.

The CHAIRMAN. I want to find, displaying as much ignorance on this matter as a man can, what are the offices in general of what you please to call switchboard and appliances; give us some general idea. I have seen them but I don't know, I confess, what their offices are.

The WITNESS. A switchboard is a part of an electrical plant used for arranging the circuits that go out of a building in connection with the different machines. For instance, the wires or conductors from the different dynamos are carried to a switchboard. The wires coming into the building from the circuits are

also carried to that same switchboard, then there are appliances on this board to enable the joining of any circuit to any machine in the case of arc lighting circuits, and in the case of incandescent circuits oftentimes the appliances are merely for cutting off the outside circuits and not for adjusting them to different machines. It is a very complicated arrangement and is different in every electric light station in the country and it is very difficult to give any other general description of it. The appliances are merely the switches and adjusting devices used for this purpose.

By Mr. GOULDING.

Q. It is the machine that the "hello girls" sit down at?

A. Yes, in the telephone office, and it is exactly the same thing in a dynamo room.

By the CHAIRMAN.

Q. The same principle? A. The same principle, exactly.

By Mr. BROOKS.

Q. You spoke of a volt meter. You say that it does not record the volts? A. A recording machine as used in this sense is one which gives a record, a permanent record, like a gas meter, or in some cases drawing a line on a paper which is used for recording purposes.

Q. Well, what does the volt meter do? How does it measure the volts so that it is perceptible to the investigator? A. There is a pointer on it very much like a clock pointer or the pointer on a steam gage. In fact, some of them are made in a similar shape to that.

Q. That does indicate, then, the number of volts? A. Yes, sir.

Q. But there is no permanent record in the machine itself?

A. No.

Q. That comes further along, in a recording machine?

A. Yes.

Q. I don't know whether it is a recording machine, is that the proper term? A. Recording meter.

The CHAIRMAN. Brother Brooks, isn't this something that the Almighty never intended us to know?

Mr. BROOKS. I don't know; I think perhaps these are recent inventions that were not anticipated..

Mr. COTTER. Brother Brooks did not consult the Almighty on that subject.



Mr. BROOKS. No. I am afraid it would not have helped me much if I had.

The WITNESS. Mr. Brooks, I may say that the technical terms may all be found in the Standard Dictionary.

The CHAIRMAN. I think the dictionary is very interesting reading. It seems to me impossible for us to understand the application. And yet, take just this discussion—of course we have arrived at some knowledge of what the switchboard and appliances are. You need not think I am making fun of this.

Mr. BROOKS. Oh, no, I would not think for a moment that your Honor would.

Mr. TURNER. Almost all of us know something about water and steam measurements. I think if you would indicate what these correspond with in water and steam measurements, it would help somewhat. For instance, a volt meter; if you can tell what that corresponds with in the measurement of steam or the measurement of water, it would be of some assistance.

Mr. GOULDING. I think Mr. Turner's suggestion is a good one. It might be well to have on the record a simple explanation.

Mr. TURNER. Take this matter you are speaking about; it is similar, as I understand to a steam gage?

The WITNESS. Yes.

Mr. TURNER. It does not record anything, but it indicates the pressure?

The WITNESS. It is an analagous instrument.

Mr. TURNER. Almost all these measurements are analagous to measurements of steam and water.

Mr. GOULDING. The volts indicating the pressure, I understand?

Mr. TURNER. Yes.

Mr. GOULDING. And the amperes the current.

Mr. MATTHEWS. Mr. Chairman, at an early stage of this case, I think some months before the hearings began, I suggested to Mr. Brooks that it would not be a bad idea if he began with his fine electrical expert by asking him to deliver a lecture, so to speak, upon the operation of an electric light station. That has not been done, and I would like to repeat the suggestion and add to it this, that the lecture be given at the station itself.

Mr. BROOKS. I agree to that.

Mr. MATTHEWS. We should be perfectly willing to have this witness accompany the Commission and go to the station, explaining just how every mechanism in it works.

Mr. BROOKS. Why is not that the best thing to do?

Mr. MATTHEWS. I think it would be an assistance to counsel on our side, at least. Probably nothing of the sort is needed on the other side, but it would certainly be of great assistance to us, possibly to the Commission.

The CHAIRMAN. I think that is a very good suggestion.

Mr. BROOKS. Then perhaps—— Ought we to do it now?

Mr. MATTHEWS. We ought to do it before the cross-examination, because I would have some questions to ask which, I think, can be shortened materially if we have the lecture first.

Mr. BROOKS. I will leave that to the Commission.

The CHAIRMAN. I should much prefer to sit here today than go to Holyoke. But let this witness stop and take somebody else, or else go ahead on general matters.

Mr. BROOKS. I shall be compelled to go ahead with this witness, your Honor.

The CHAIRMAN. Go ahead. You are not losing any time by asking these questions because when he gets there and proceeds to demonstrate practically we shall catch on to many of these things.

Mr. BROOKS. Then I think I will go on with an explanation of these characters as far as I can get it.

The CHAIRMAN. I wish you would.

By Mr. BROOKS.

Q. What is a rheostat (page 10)? A. It is an appliance used for introducing resistance into a circuit. Otherwise, it is in these particular cases here, in general, a coil of wire which is put in convenient shape so that the resistance can be introduced in the circuit to oppose the flow of current.

Q. Does that regulate the voltage? A. Yes.

Q. Does that answer the same purpose as throttling a valve on a water pipe to regulate the flow? A. Yes, or perhaps a better analogy would be reducing the pressure.

Q. What is that? A. Perhaps a better analogy would be introducing something in the circuit which would reduce the pressure in the circuit.

Q. What would that be in steam mechanism? A. I don't know but throttling——

Q. Throttling a valve? A. Throttling a valve would perhaps be the best way of describing it to a layman.

Q. Under the head of "Rheostats" you have "2 Carpenter for A. C." Is that "alternating currents"? A. Yes.

Q. "Exciter and field." Explain that verbiage. A. The "Carpenter" is the man's name who invented this particular style of rheostat, which is one that is made convenient for use, and "For alternating current exciter" means that there is one of them used in the field circuit of the exciter itself to vary its voltage or pressure, and the other one is used in the field of the alternating current dynamo to vary its flow of current, and therefore vary the voltage or pressure of the alternating current dynamo so as to keep a proper pressure on the line—on the circuit—to supply the lamps.

Q. Then your "D. C." farther down—"1 Edison 100 K. W. for 500 volt D. C. field"—"direct current," does the D. C. stand for? A. Yes, sir.

Q. Your next is a regulator for the 500 volt rheostat? A. 2 Holtzer-Cabot regulators for 500 volt rheostats. That is a mechanism that is controlled by a small motor which automatically changes the rheostat or introduces more or less resistance to the circuit. Most of the others—in fact, all the others here—are varied by hand. These particular instruments are used for power generators so as not to make it necessary to keep a man at the regulator all the time.

Q. Whether the object of that is to keep the voltage steady?

Q. And whether it is done automatically? A. This is automatically—these two machines are for automatic use.

Q. The next are "Equalizers"? A. Yes, sir.

Q. What are they; what office do they perform? A. Those are large rheostats called equalizers——

Q. What are the equalizers? A. "Equalizers" is in this case applied to a large form of rheostat that is named equalizer by the Edison Company and is so listed in their catalogues, and is used to equalize the pressure or voltage on the outgoing circuits.

Q. It does what? I did not catch that last. A. It equalizes or varies the pressure on the outgoing circuits.

Q. That is, that is a rheostat? A. Yes. It is almost impossible to explain these things without being on the ground to show where they come in.

Q. Farther down is a circuit breaker, Thomson-Houston, 150 amperes. What is a circuit breaker? A. That is an automatic device used for opening a circuit or breaking a circuit in case of an extra flow of current. It is a safety device; it is like a safety valve on a boiler. If the current flowing becomes too heavy, so as to endanger the machine in any way or the circuit or any of the appliances, it automatically opens and breaks the circuit, thus causing the current to stop.

Q. Turning along over to the eleventh page, under the head of "Switches," "1 T.-H. dp. dt." That is Thomson-Houston double what? A. double pole, double throw switch.

Q. Well that is a Thomson-Houston double pole double throw? A. Yes.

Q. Take "2 T.-H. sp. st." What are those? A. Single pole single throw.

Q. I suspected that. What does "on 7 1-2 horse power motor" apply to—the whole of that, or only one? A. No, only that one.

The CHAIRMAN. I should like to know what that expression is in the next line.

Mr. BROOKS. It looks like "pints"; I don't know.

Q. What does that "Edison 5 pt. throw-over 500" mean? A. It means 5 point.

Q. Five point? A. Different pronunciation, that is all.

Q. Pretty close. A. The throw-over means that the switch is so constructed that in case of injury to one dynamo, or at times of very small load, by throwing this switch the three-wire circuit can be transferred to one dynamo line, therefore not necessitating the running—

By Mr. GOULDING.

Q. What is "500 throw-over"? A. 500 means 500 amperes.

Q. What does it do? A. It changes the 3-wire system to a 2-wire system and runs it on one machine instead of two.

By the CHAIRMAN.

Q. All this means that you finally get your electricity to your customer, doesn't it? A. Yes, if the wires hold out.

Mr. MATTHEWS. And if the dictionary holds out.

By Mr. BROOKS.

Q. What are feeder blocks? A. Feeder blocks are simply the appliances used for connecting the outside circuits to the inside circuits.

By the CHAIRMAN.

Q. What does that mean? A. In other words, in other places that would be used as a switchboard, but in this particular system, the Edison system, as here applied, they are simply small blocks of wood or slate with a device fastened on them so that the circuit, one wire coming into the top of it—that is, the wire from outside—and the other wire from the machine coming to the bottom of it. There is a device there for connecting them together. If you should wish to disconnect the outside wire for any reason there is a plug that you pull out, and that disconnects the circuit. Otherwise it is a miniature switchboard for one wire.

Q. A one wire switchboard? A. That would be a one wire switchboard, a feeder block.

Q. Well, you have got “G. E. Co. 100 ampere alternating current double blocks”? A. Those feeder blocks are simply a variation in the type, that is all. It is made by the General Electric Company, and the block is a double—

The CHAIRMAN. You only charge sixteen dollars for them; I think you had better pass that item over.

Mr. BROOKS. I do not think we are going to throw out sixteen dollars in one block; not if I can help it.

Q. What is the plug block? A. Those are the ones that I previously described.

Q. You have an iron fuse block here? A. Yes.

Q. What is the difference? A. A fuse block is a device used for disconnecting the circuit, but doing it automatically. There is a strip of fuse, as we call it; it is a metal made of lead and tin, and in its usual form is a strip, a flat strip of this fusible metal; that is, it melts at a lower temperature than copper, and is so situated that with an excess flow of current it melts and opens the current automatically. It is a safety device.

By the CHAIRMAN.

Q. Are there any other kinds of blocks used in the electric

business? A. I presume we would find a great number of them in the price lists.

The CHAIRMAN. You need not go into them; I simply wanted to know.

By Mr. GOULDING.

Q. That is a circuit breaker? A. It is a circuit breaker. It is really a circuit breaker, but it is a fusible circuit breaker. The other circuit breaker that I previously described is a mechanical circuit breaker.

By Mr. BROOKS.

Q. What is a lightning arrester? A. It is a device for diverting lightning from the machine in a station. All overhead electric lines, telegraph, telephone, electric light or electric power or trolley lines, are in danger of catching lightning that may be in the region, and of course, the copper being of very low resistance, it may cause trouble in the machine which may at that time be connected to that circuit, so that it is necessary to have some sort of device that will divert the lightning current to the ground; and that device is applied to an electric lighting or other circuit, and lightning coming in on the wires is diverted by this device to the ground. That is, the current is arrested from getting to the machine. There are lots of different kinds of them; there are some of them simple and some of them complicated, but they are all made for the same purpose.

Q. Were these proper kinds of arresters? A. Yes.

Q. And they answered the purposes for which arresters are made? A. Yes, as far as I know. They are a common kind, the kind that is used in different places and stations; that is, the station has been going for some time, and there seems to have been no trouble from lightning.

Q. I see you have "4 Wurtz, box form"? Is that the maker's name? A. Yes, Wurtz is the inventor. He is an electrician of the Westinghouse Co.

Q. Now the next. Is that a General Electric? A. General Electric alternating current. The porcelain type; that is, the base or foundation on which the instrument is mounted is porcelain. The general tendency now-a-days is to make all such things on non-combustible material.

Q. I see you have two that are not in use. What do you

mean by that? A. I think there were two that were on the bench, along in the building somewhere. I have forgotten the detail of it.

Q. Spare arresters? A. Yes.

Q. What is a ground detector? A. All electrical circuits have to be kept from contact with the ground, that is, the metallic part of them, not only the machines but the external circuits. Otherwise the working would not be good. If there is one ground only, that is, if one side of the circuit comes in contact with the ground there is little or no danger, but if at the same time the other side of the circuit should be grounded, then it would vary the output of the machines, might harm the machines, or burn them, or might put out a certain number of lights, or all the lights. Therefore we have to have an appliance for detecting the contact of the circuit with the ground.

Q. Does it show by that where electricity is being lost? Does this detect it? A. Why, it may not be lost, but it may be in condition so that it might be lost if it was not detected in time. So, therefore, a ground detector is a device which, connected from the circuit to the ground, will in some way indicate the presence, or not, of a ground contact. Sometimes it is an incandescent lamp, which will brighten, or grow dim, according to the nature of the appliance. Sometimes it is a pointer like a steam gauge. There are various forms of it.

Q. Does this detector locate where the electricity is being lost or going to waste? A. It does not locate it. It simply indicates that there is a condition under which electricity might be lost, or is being lost. It does not show where. Other means have to be taken for indicating where, that is, locating it.

Q. That is, this does not fix the locality? A. Not at all.

By the CHAIRMAN.

Q. What other means are there? A. For locating it, you mean?

Q. Yes. A. They are almost too numerous to mention, but ordinarily some form of galvanometer is used for measuring the resistance of the circuit to the place where the ground is. Perhaps an exaggerated instance of it would be to locate a ground contact in an ocean cable, which may be two thousand miles away. In that case the galvanometer is applied so as to locate it,

and a ship goes to within a mile of the spot usually. In some systems they do not locate it at all. They simply put on machines, and burn the circuit right off at that point.

By Mr. BROOKS.

Q. You mean by that, they break the circuit in two?  
A. Break it in two, yes.

Q. What is the office, the functions, of a transformer? A. In this particular sense? Here?

Q. Yes; I mean as set out on page 12, under the head of "transformers." A. A transformer, in this particular sense, is for changing an alternating current of one pressure to another pressure. As used here, it is changing an alternating current of high pressure to a current of low pressure, so that it is not dangerous at all to handle, or to have in use in the houses and buildings, etc.

Q. Does that reduce the voltage? A. Yes, it reduces the voltage or pressure.

Q. I notice you have here above, in your first item on page 12, under "ground detectors," "ground detector with transformer." A. Yes. In this case they use a transformer in order to make use of the current of the alternating circuit, so as not to have too great a pressure on the instrument itself.

Q. These that you have under the general head of "transformers" are in addition to that transformer? A. Oh, yes, entirely so.

Q. You have 9 transformers under this general head of "transformers"? A. Yes.

Q. What is the office of a station transformer? A. That reduces the current from the high pressure which is produced by the machine to a low pressure which is supplied to the instrument on the switchboard, and to indicating lamps, etc., on the switchboard, pilot lamps, as they are called; that is, a lamp which runs when the machine runs and stops when the machine stops, showing that the machinery is running.

Q. That is, these are attached to the current from the alternator or alternating dynamo? A. Yes.

Q. Then I see you have "7 type F, 1040 volts, out on line."  
A. Yes.

Q. What is the office or function of those? A. Those are



larger transformers that are placed in different localities where lighting is wanted, and they reduce the pressure of the alternator, or alternating current dynamo circuit, from 1040 volts, which would be dangerous to handle in a house, for instance, to a lower pressure of voltage, in this case I presume to 110 volts, which is perfectly safe and can be and is used for supplying lamps in houses and stores.

Q. And you say "7 type F, 150 Lt." Do you mean by that that each one of the seven will take care of 150 lights? A. Yes.

Q. What is the difference between type F and type H? A. The type H is a later form.

Q. Accomplishing the same result? A. Yes.

Q. Coming to the next heading "Arc Lamps Installed," on page 12, what do you say with reference to those lamps, their condition and usefulness, and whether or not they properly accomplish the purpose that they are designed for? A. Why, they do so as far as I was able to find out by inspection, by a fairly careful inspection. I did not make any individual test of a lamp, or anything of that sort, other than to see, perhaps, some of them burning in the station; and then I walked round the streets during the evenings when they were burning. I should say they were in the ordinary good condition of any arc lamps that are in use today.

Q. And, with reference to giving a result, whether or not they give a result that is substantially as good as any arc lamps?

A. Just the same.

Q. I see that you have under your heading of "Arc Lamps" on page 12, "297 Schuyler 7 ampere, double; 285 Schuyler 9.6 ampere single." What is the difference between the double and the single? A. Double lamps are used for street lighting, and at the time these lamps were made it was necessary to have two carbons in a lamp in order to enable it to burn all night. Single lamps are used entirely for commercial purposes, and do not burn over six or eight hours, or something like that, and one carbon will last during that time, very easily.

Q. That is, the double is the half arc and the single is the full arc? A. Why, it is in this case, but not necessarily so anywhere else.

Q. In this particular case? A. In this particular case, yes; the double lamps in this case are street lamps.

Q. They are the half arc lamps? A. Yes.

Q. Now on page 13 you place a valuation on some meters?

A. Yes.

Q. That are situated in the stores in Holyoke? A. Yes.

Q. Just give us, in English, what this first item means here?

A. One Edison No. 2 meter.

Q. Two Edison No. 2 meters? A. I beg pardon.

By the CHAIRMAN.

Q. What is a meter, in this connection? A. A meter for electricity in this case is used exactly the same as a meter on gas main.

Q. You can measure electricity the same? A. In the same manner.

By Mr. GOULDING.

Q. What is the unit? A. kilowatt.

Q. Have you explained what a kilowatt is? A. No, I have not. The unit of electrical energy is the watt, and the kilowatt is a thousand watts. It comes from the metric system of measurements, in which kilo means a thousand, any way, or practically so, and they have adopted the same—well, you might say the same method of notation in electricity as they use in the metric system.

Q. What is the relation of the watt to the ampere and the volt? A. A watt is the product produced by multiplying together the pressure, or volts, and the ampere.

By the CHAIRMAN.

Q. What is the equivalent of the kilowatt in horse power?

A. About a horse power and a third.

By Mr. GOULDING.

Q. What, a kilowatt? A. Yes. A horse power is 746 watts, and a kilowatt is a thousand watts.

By Mr. BROOKS.

Q. Have you recently written a work, a handbook, on electricity? A. Yes, not published yet, but it is in the press.

Q. What is the 8 and the 3? Just follow out your first item. A. \$8.00 is the cost of the meter, and \$3.00 the price of installing; my own prices.

Q. And that \$8 and \$3 equal \$11? A. Yes.

Q. There should not be a minus sign there? A. No. It is a sign of equality.

Q. Is that so all the way down through? A. Yes, sir, all the way through, I think.

Q. I see that you have some of these meters 2-wire and some 3? A. Yes.

Q. What is the difference? A. Why, some meters are used on a 3-wire system, the Edison 3-wire system, and the meter is an especial type for that purpose. Other circuits are 2-wire circuits and the meter is simply designed for that purpose.

Q. On page 14 I see you have "190 arc hanger boards in stores." What are those? A. It is an appliance, if I may so call it,—which is secured to the ceiling in stores, and to which wires of electrical circuit are attached, and it has wires or hooks from which is suspended the lamp.

By the CHAIRMAN.

Q. Gives more light? A. No, sir. Simply an appliance for attaching the lamp so it can be turned off without interrupting the service.

By Mr. BROOKS.

Q. The next one is "70 switches in power service S. T. D. T." What is that? A. These switches are used in such places as electric motors are used for power, and it is customary to put a switch on, and there is a circuit breaking device at the point where the circuit enters the building. S. T. means single throw; D. T. double throw. Those are price-list words.

Q. Used to start and stop the motor? A. Not always for that purpose. Used to break the circuit. There are devices for that purpose.

Q. Is this used to stop the motor? A. Yes; excepting if there were three or four motors to the building. This switch is at the entrance to the building, and if the company desire to stop it they would throw that switch.

Q. Throws it on or off? A. Yes, sir.

Q. "120 Brady arc cut-outs." What are those? A. Brady is the maker's name. Arc cut-out switches are used for disconnecting a portion of the circuit from the main circuit. In that case we cannot open the circuit, as that would destroy it. The arc cut-out may be placed in the doorway of a store, where they have a number of arc lamps. It may be necessary to shut off a number of those arc lamps during the evening. The arc shut-off is operated, shutting out those lamps, and maintaining a continuity of the circuit.

Q. You have "163 porcelain cut-outs with inc. service." A. Incandescent.

Q. The object of those is substantially the same as the others? A. Yes, sir, except these are fuse cut-outs. There is a fuse-wire in it, making it an automatic cut-out.

Q. These porcelain cut-outs are automatic? A. Yes, sir.

Q. Are not the Brady cut-outs automatic, also? A. No, sir. The porcelain cut-outs are used only for some disturbance on the circuits inside of the building.

Q. Spark arresters? A. Netting put over the lamp, to prevent sparks from flying out on goods.

Q. Wire? A. Yes, sir.

Q. You have an item of service, \$2,267. Be kind enough to explain that. A. If you will refer to page 43 you will find a list of what we call service connections—almost identical with service connection in gas mains. This is the cost of making the connection between the main circuit and the lamp itself; in commercial arc lamps, cost of connecting from street to doorway from the line to the building.

Q. It runs from the street line to the building? A. Yes, sir.

Q. Does it make any difference whether arc lamps, or incandescent? A. No, sir. If a city lamp, it runs from pole to the lamp; with an arc lamp it would depend upon the manner of the service. Simply connecting the water pipe with the house itself.

Q. Under the head of poles——

The CHAIRMAN. I don't see anything in that item of poles, and I don't see anything there I don't understand.

Mr. BROOKS. Your Honor understands what "hanging boards" are, and "cross heads," and "hoods"?

The CHAIRMAN. I know as much as I ever shall know. I have seen the telephone pole, and know what is on it. I don't care what you call the different things. What is a hanger-board?

The WITNESS. It is the board inside of the hood you see on the street, from which an arc lamp is suspended. A hanger board is put inside to insulate the lamp from the rest of the appliance. The cross-head is a device on top of the pole on which the arc lamp is supported. It is an iron casting; and that supports the hood, and the hood supports the lamp.

By Mr. BROOKS.

Q. What is the condition of these poles? A. They are in pretty fair condition. Many of them are in very good condition. There are a very few that are not in other than fair condition. They are not expensive poles, and never were.

Q. You apply that to poles of wood? A. Yes, sir.

Q. Whether or not the expenses for current renewals and repairs amply take care of them? A. Yes, sir. I don't think anything has been done to these for the length of time covered by this condition. Under ordinary circumstances that would be the case.

Q. What part of the line? A. I mean the pole lines.

Q. That is since the investigation began? A. Yes.

By the CHAIRMAN.

Q. Whether the prices you put here are for new poles?

A. The prices are for duplicating with new poles, like everything else. I afterwards deducted for depreciation.

Q. I understand that. You speak of the quality. Have you duplicated for putting back in the same quality, kind, and everything else? A. Identically, yes, sir.

By Mr. BROOKS.

Q. I see that your value unreduced for wire is \$11,432.  
A. Yes.

Q. And you took this as of November 9, 1898? A. Yes.

Q. At the end of your page, towards the close, you have the Roebing list November 9, 1898, minus sign, 1-4 C. T. A. I used the Roebing wire list of that date. They send out bulletins at least once a month, giving the current price of copper wire of all kinds. As I recall now, I took the price 1-4 of a cent less than they had on the list of that date.

Q. That means cent, Ct.? A. 1-4 cent.

Q. I see you have "bare." That means bare wire? A. I have given in those two columns the weight per foot of bare wire, and in the next column the weight per foot of 3-braided wire, and the number of pounds, and is carried out at the number of braided wire weight; the total pounds at the bottom is carried out at a price of 15 cents for the wire per pound.

Q. Is wire bought at braided wire weights—bought and sold?  
A. Yes, sir. All insulated wire of this nature, excepting rubber covered wire, is bought by this weight—insulation, wire and all.

Q. What are those signs after "6000 feet"? A. Those are the gauge signs 0000 Browne & Sharpe gauge. Those are the regular market commercial ratings of the size of the wires.

Q. This is all copper wire? A. Yes, sir.

Q. I think you have stated that the price has advanced 60 per cent. of your valuation? A. Yes, sir.

Q. Then on the 18th page we come to "pole line appliances." What are D. G. insulators? A. Deep groove. That is the commercial rating of size. Means deep groove. They are used for carrying electric light wires, while the ordinary plain glass insulator is used for carrying lighter wires.

Q. What are "lags"? A. Lag screws. Lag screw means large screw or bolt used for wood, and driven in, instead of turned in.

Q. "10 pin, pins and insulators." What are those? A. 28 ten-pin arms with pins and insulators. You will notice that the heading is "cross-arms," including pins and deep groove insulators. This 28 you will find is 28 ten-pin arm, 42 cents, lags 3 cents, pins and insulators 34 cents; total 79. Set in place complete, \$1.

Q. Making \$28? A. \$28 for the twenty-eight ten-pin arms.

Q. Then going slowly we get to the middle of page 19, and take up boiler-house machinery. What is an "up-take"? A. In this particular place it means sheet iron pipe connecting the top of boiler to the breeching. The breeching is the pipe running out to the stack.

Q. "One set extra gears for snow governors." Are these insignificant of that word "dormant"? A. Built in; built into the floor; it is a trade designation.

Q. On page 21 I see you have, toward the middle of the page, "2 bevelled gears for snow governors; 10 extra dogs for snow governors." And then you have a mark under it there and a corresponding mark below. A. Yes.

Q. "One set extra gears for snow governors." Are these included in that price of \$20? A. Yes. The note at the bottom is simply a description of the sizes, etc., of the gears; so that two bevelled gears for snow governors and ten extra dogs cover the entire item.

Q. That is, they are explained—— A. By the note below. It is simply explanatory, that is all.

By the CHAIRMAN.

Q. On page 22 you have 1 tachometer. What is that? A. Tachometer, an instrument for indicating the speed in revolutions. It is belted from a shaft. Sometimes it is made a permanent attachment of a machine.

The CHAIRMAN. That belting and shafting I do not think you need go into.

Mr. BROOKS. I do not care, either, may it please the commission, to go into the details of the business.

The CHAIRMAN. It is very vividly put here.

Mr. BROOKS. To the bottom of page 37 I do not purpose to question about. Is there anything on page 38 that the commission care to have explained?

The CHAIRMAN. No, I do not think so, unless the other gentlemen do.

Mr. BROOKS. Page 39 is the same.

By the CHAIRMAN.

Q. Steam piping, page 40. What is that feed piping? A. Feed piping is the small piping from the pumps to the boilers.

Q. Oh, yes; incident to the running of the boilers? A. Yes.

Q. Page 41, canal suction pipe. What is that? A. It is the pipe running from the canal into the building to obtain water for the pumps, as I remember it.

The CHAIRMAN. Page 42, machinery and supports in the wheel pit. I should like some explanation of the wheel-pit business.

By Mr. BROOKS.

Q. You have there two large and two small wheel cases. A. Those are cylindrical sheet iron cases with a top and bottom flange, in which are contained the turbine water wheels.

Q. What are your draft tubes? A. Those are tubes leading from the bottom of those cases into the tailrace; they lead under the surface of the water so as to be air-tight.

Q. What are the girders? A. The girders are beams, cast iron beams, on which these cases are supported.

Q. What are the lower cross girders? A. Why, there were

some small girders that crossed the long ones, as noted above; simply used in the support of the cases.

Q. And the posts; what office do they perform? A. They support the girders, and therefore the cases, from the bottom of the pit.

Q. Then the foot plates? A. The cast iron plate under the bottom of the post.

Q. What are the lower bearing yokes? A. I don't recall just this minute.

The CHAIRMAN. You need not bother about the details.

The WITNESS. Yokes, in general, are simply curved pieces of cast iron to support the wheels or wheel bearings in some cases.

Q. Running along to page 53 we come to the depreciation and your theory and knowledge with reference to depreciation. As I understand it, you make no depreciation on the mill site? A. No.

Q. Why? A. Why, I would think rather that it would increase in value. I have made no note of such increase in value, but that it would increase rather than decrease.

Q. On page 54, under table A, you really start a sinking fund for depreciation? A. Yes.

Q. Will you be kind enough to explain to the commission just how this is done, and your reasons? A. I have made a list of such parts of the plant as are subject to depreciation, material depreciation, and have listed them in two tables, for the reason that I have given each of these tables a different term of life. For instance, in table A, I have given a list of the boiler house machinery.

Q. Page 54? A. Yes, that is right. Boiler house machinery, dynamos, spare parts, armatures, etc., switchboards, etc., transformers, arc lamps, meters, service appliances, poles, etc., wire, pole line appliances. I have placed opposite each of those the value of the machinery, and the total of it \$74,578.

Q. Is that the value, new, in 1898? A. That is the value, as I have placed it, new, in 1898. I have assumed that the machinery and appliances included in this table would last an average of 20 years; and then from that, and from annuity tables, I have found the amount that it would be necessary to place on



deposit at 4 per. cent. interest to produce those total values in that length of time. Thus, we make an annual deposit of \$2,505, and at 4 per cent. interest in 20 years that will amount to the total value of this table. In 20 years, if that is placed every year, and at 4 per cent. interest, the value of \$74,578 will be obtained. Shall I take the next table?

Q. Excuse me just a moment. As I understand it, \$2,505 set aside each year at 4 per cent. in 20 years will amount to this sum of \$74,578? A. Yes.

Q. Now, what does your third column comprehend? A. That comprehends the value of that annuity fund at the end of seven years, which is the age of this property.

Q. You mean by that, that that comprehends the value of the depreciation of this property at the time of your examination in 1898. A. Yes.

By Mr. COTTER.

Q. How did you obtain or get at the annuity table? A. Why, I simply took an annuity table from Kent's Manual. It is a table that has been proved and is used commonly for that purpose. I used that table simply because it was the handiest one to get at. I presume that all the insurance companies have them.

Q. Is it a table that refers to machinery? A. No. I simply have to assume the life of machinery. That is, my opinion of its life.

By Mr. BROOKS.

Q. That is, the life of machinery is the length of time, in your judgment, that it is certain to live? A. Yes.

Q. Then you take an annuity table and take certain sums, as you have here, and at 4 per cent. you find out. That is, you take \$1900, which is the first item in that third column? A. Yes.

Q. What does that represent? A. That represents what \$241 will amount to in seven years.

Q. That represents the present value of \$241 at the end of seven years? A. Yes.

Q. Compound interest? A. Compound interest.

Q. 4 per cent.? A. Yes, regular annuity value.

Q. And so on down through the table. The next one, \$5,550, represents the present value of \$702 at the close of seven years? A. Yes.

By the CHAIRMAN.

Q. \$2,505 is the annual deposit? A. \$2,505 is the annual deposit.

By Mr. BROOKS.

Q. And your \$19,794 represents the value of the \$2,505 at the end of seven years? A. Yes.

Q. And also the amount of depreciation on the \$74,578, which is the total of your first column? A. Yes. That is, I balanced that against the depreciation at that time.

Q. Now you have taken seven years? A. Yes, sir.

Q. Are any of these mechanisms younger than seven years? A. Yes.

Q. And any older than seven years? A. Some.

Q. And do you consider the present condition of those machines when you take your seven years? A. Yes.

Q. And that is for the older and the younger? A. I assumed an average for those.

Q. And whether or not, in your opinion, that is an ample depreciation? A. I think so.

Q. At the end of 20 years you have assumed the death of every one of these mechanisms? A. Practically so, yes.

Q. And a new machine in each of their places? A. That is, the money is provided to purchase a new machine in their place.

Q. Now I want to ask you what, with proper care, proper attention and proper renewals,—what will be the value at the end of 20 years of all these various mechanisms comprehended in table A? A. Some of them may be very valuable indeed; that is, for the purposes and at the places where they are located. It would be very difficult to say that they were scrap at that time.

Q. You mean by that that simply for the purposes of depreciation you call them dead at the end of 20 years? A. Yes, I have assumed that length of life.

Q. And you have given no credit for any value that they may have at the end of 20 years? A. None whatever.

Q. Take the item of wire, for instance, which is an item of \$11,432. What will that be worth at the end of 20 years? A. At the present time it is worth at least 40 per cent. more than that.

Q. You mean by that that this wire at the end of seven years is worth 40 per cent. more than what you have got it down here?

A. The price of copper today is 60 per cent. above what it was when I calculated this, and I say, making due allowance, that it is probable that that copper today is worth 40 per cent. more than this value.

Q. That wire that has been there for seven years? A. Yes; there is no disturbance in the nature of the copper at all.

Q. Now take the boilers in this building.

The CHAIRMAN. What have you done with reference to those boilers? They have not been in much use. Did you depreciate them the same?

The WITNESS. I have put those in as 20 years.

Q. Whether or not, with the use that they will have had within the remaining 13 years, assuming that they are given the same care for the remaining 13 years,—whether or not those boilers will be worth anything at the end of 20 years? A. I should think they would be worth considerable.

Q. But you have allowed nothing? A. No.

Q. In your theory of depreciation, for the value of any of this property at the expiration of 20 years? A. No, not at all.

Q. The dynamos, an item of \$20,920. Supposing they are rewound, rebushed and have the proper care taken of them for the next 13 years, whether or not they will be valuable or dead at the end of 20 years? A. They certainly would not be dead. They could be made, at perhaps a moderate cost, very good machinery.

Q. At the end of 20 years? A. At the end of 20 years, probably. The cast iron does not depreciate. The only thing about the winding that depreciates is perhaps the insulation on the wire.

Q. Take table B. You have got another period of mortality. A. Yes.

Q. You take that as 40 years? A. I have taken that as 40 years, yes.

Q. Why? A. Well, I have assumed that the material listed under that table will last that length of time. We simply have to make it as an average because it is difficult to say just how long.

Q. Is it a mere assumption on your part? A. It is an assumption guided by experience.

Q. That is, it is the result of experience, is it? A. Yes.

Whether or not the allowance of a life of 40 years to this mechanism in table B is a fair allowance? A. It is very conservative, to say the least.

Q. And you take the same basis, to wit, 4 per cent? A. 4 per cent., yes.

Q. For instance, your first item is steam piping, \$2,605. That is the cost in 1898? A. Yes, that is the cost or value that I have placed on it in 1898.

Q. Very well. You set aside for that an annual deposit of \$27? A. Yes.

(Noon recess.)

**AFTERNOON SESSION.****EXAMINATION OF HORATIO A. FOSTER, resumed.**

By Mr. BROOKS.

Q. So that the amount of \$4483 represents the amount of depreciation upon the machinery comprehended by table B up to the time when you made your examination? A. Yes, sir.

Q. Which, taken from \$54,045, would be its worth then? A. Yes.

Q. Well now, take the engine room machinery, \$15,000.

A. You notice the next line says deducted for foundations.

Q. Take your engine room machinery, which with the deduction for foundations amounts to \$11,500, what will that machinery be worth at the end of 40 years, assuming that proper care is taken of it, and proper renewals made, and that it has substantially the same use that it has had for the past seven years. A. The prospects are that it would be very valuable indeed, in a measure nearly as valuable as now. It is difficult to say.

Q. And the same with reference to the wheel house machinery? A. Yes, except that that is running a great deal more than the other.

Q. Exactly. So that, although you consider this machinery dead at the end of forty years, for the purposes of your depreciation, as a matter of fact it would not be? A. There is liable to be considerable value to it at that time.

Q. Is there any one method or rule of depreciation that can be fairly applied to all electrical plants? A. No, not that I know of.

Q. What does the depreciation depend upon? A. Why, the conditions of first installation, that is as to quality and method of placing, and the quality of the machinery itself, and the care that it has, more especially to the care that it has, and I do not know that I can name any other qualities.

Q. On page 56 of your schedule you have a table of the

amounts to be set aside at 3, 4 and 5 per cent., for a sinking fund for final renewal for each \$1,000? A. Yes.

Q. You take on page 57 the net income of this plant from operation, and deduct from that the amount of your renewals? A. Yes.

Q. For each year? A. Yes.

Q. Leaving the income with your renewal fund deducted, \$20,145.30? A. Yes.

Q. And your \$3072.91 is obtained by taking the annual deposit in Table A, and annual deposit in Table B and adding them together? A. Yes, sir.

Q. There is a little difference in the figures—of no consequence. Perhaps you did not carry it out. Table A, \$2505; and top of page 2 you make it \$2504.33. A. I neglected the cents in some cases, and carried it to even dollars.

Q. You took your earnings, \$33,381.34 for 1898 from the tables of Mr. Foster, the accountant. A. Yes, as furnished by Humphreys & Glasgow.

Q. Assuming that this plant is earning net this sum of \$20,145.30, what do you say is the fair value of that plant? A. \$502,630.

Q. You capitalize it upon a basis of 4 per cent? A. Yes, sir.

Q. In your opinion that is a fair capitalization basis? A. Yes.

Q. Now, Mr. Foster, what do you say in your opinion is the present opportunity for business of this plant in the city of Holyoke?

(Same objection to all this.)

A. You mean for enlargement of the business; increase of the business?

Q. Yes. A. I should say it was good.

Q. And how good? A. Well, I may say very good.

Q. To avoid a leading question, what do you mean by "very good," in dollars, or in per cent.? A. I don't know that I have ever computed it in that way. I might give my judgment of it.

Q. That is what I ask you for. Taking into consideration everything, domestic lighting, everything of that kind, what in per cent. are the present opportunities for more business than

they are doing at the present time? A. Under the present conditions of the city, I should say 50 per cent.

Q. 50 per cent. more. A. Yes, sir.

Q. What do you mean by "present conditions of the city"? A. Say, without allowing for any future growth.

Q. Without allowing for future growth, you say the present opportunities for business are 50 per cent. in addition to what they are doing. A. That is my opinion.

Q. And do you mean by that increase of profits substantially 50 per cent? A. My reply would mean more especially increase of income. The profits perhaps might increase more in proportion, because the fixed charges and labor would not increase in proportion to the income.

Q. So that if you had 50 per cent. increase in income you would have larger increase than 50 per cent. in profits, in your opinion? A. Yes.

Q. With reference to the 8 mill-powers that are not now used for doing the direct business of this plant, in your opinion what can they be used for to advantage in the city of Holyoke?

(Same objection as before.)

A. Why, they could be used for any increase in lighting that might come in the way of increased city lighting, of commercial lighting, but more especially in increase of application of electric power to the smaller industries.

Q. How soon, in your opinion, would those 8 mill-powers that are not at present used, be utilized in the City of Holyoke?

A. Well, applying to it the operation of the station and business management, the methods that are applied in other similar places, I think they ought easily to be disposed of in the way I have spoken of entirely inside of two years.

Q. And that, then, would make the use of the full 16 mill-powers. A. Yes.

Q. You say all 8 mill-powers, in your opinion, could be utilized within two years. What proportion would be utilized within one year of these 8 mill-powers? A. Well, in the ordinary course of business of that nature, it does not increase quite in proportion. There is a sort of acceleration as it grows larger. To rate it one year, there would be possibly one-third or two-fifths used, and the rest or the three-fifths might be disposed of

the next year, owing to the acceleration of use. I think that has been the experience of electric power plants.

Q. Have you looked, made any examination, and formed any judgment upon the amount of salaries allotted by Humphreys & Glasgow to this electric plant? A. No, I have not given it particular consideration, except in the line of going over the report when it was handed in.

Q. Whether or not in your opinion the salaries they have allotted generally, office men, or book-keeper, collector, clerk, on this electrical plant, are fair allotments? A. I think they are fair so far as I can see here. I don't see any reason to think otherwise.

Q. Whether or not in your opinion there is any difficulty of having a spur track leading from the Boston & Maine Railroad—branch track—into this plant? A. There is no difficulty in the plot of ground, that I know of.

Q. So far as the ground is concerned, is there any difficulty in getting a spur branch track in there? A. Not any.

Q. You have seen this plan (showing plan)? A. Yes, sir. Mr. BROOKS. I will offer this.

By Mr. BROOKS.

This is a blue print showing proposed railroad siding to the plant for coal supply.

Q. What do you say with reference to the storage capacity for coal there? A. Why, there is plenty of room for it, under almost any circumstances.

Q. And by this arrangement? A. By that arrangement the coal could be put directly into the boiler-house without any expense whatever, right from the bottom of the car.

Q. Whether or not it is customary for electrical plants to have a large storage capacity for coal. A. Very few of them do, excepting in the largest stations, where there may be some important business connected with them; but the ordinary sized station usually makes a contract for coal delivered, and they seldom have over a day's supply.

Q. What do you say with reference to the capacity of the buildings for the further growth of the business? A. They are plenty large enough to do considerable growing, and I have no doubt at all were laid out with the idea of filling the dynamo



room with machinery which would take its power and absorb the power as laid out in the shafting of the wheels.

Q. With reference to the duplication that is already there, what have you to say? A. There is no extraordinary duplication.

Q. What do you say with reference to the ability to duplicate the mechanisms that are there corresponding to any increased future growth of business? A. I don't understand the question.

Q. You probably have answered it already in reply to my first question, but I want it plainer. Whether or not there is plenty of room there for duplication of mechanisms to accord with future growth? A. In my opinion, yes.

Q. Why do you say 4 per cent. is a fair basis of capitalization of the net income? A. Why, I think that the Holyoke Water Power Co. are being deprived of property that earns them a certain income, and that they should be reimbursed with an amount that would return the same income, practically, and that they would find a great deal of difficulty investing in anything that would return them more than 4 per cent., and possibly would find difficulty in getting as much as that. I have assumed 4 per cent. is a fair basis of return they might get from whatever award they might get from this sale.

Q. Whether or not in your opinion the 16 mill-powers of water are the fair market value of \$4500 per mill-power, in the first instance, together with the rental of each mill-power at \$1500 per annum? A. I think it is a very conservative value.

Q. What do you mean by that: that it is low? A. Yes.

Q. Why? A. Well, I think that the \$4500 charged in the first place is low for water-power situated as that is, and the privilege it conveys.

Q. That is, \$4500, charged with the privilege it conveys? A. And especially with the location.

Q. With reference to the annual rental of \$1500, what do you say? A. It is low for a power used in the way a power of that kind is in that place.

Q. As compared with steam; which is the cheaper, the water power at \$4500, for the privilege of renting each mill-power, together with \$1500 additional for rent per annum, or is steam?

A. The water is the cheaper.

Q. At that rate? A. Yes.

Q. You said something with reference to location. What do you mean by that? A. Why, it is a water-power located in the middle of a town. It has the best of freight facilities. It is near markets. It is convenient of access; convenient to almost everything that makes manufacturing possible. It is not like a water-power situated in the wilds somewhere, where everything has to be carted to it, and difficult to get labor, difficult to get supplies to and from, and you might say far from civilization, where there was nothing to attract people to stay there.

Q. Does the fact enter into the formation of your value that they are furnished substantially with a dam and all the necessary accessories, and that the same are kept in order? A. This is perpetually in order, and the condition is the best in that way.

#### CROSS-EXAMINATION.

By Mr. MATTHEWS.

Q. What experience have you had in the valuation of electric light plants for purpose of sale? A. Valuation of the Chicago Edison plant.

Q. Was that for the purpose of sale? A. Not exactly for sale, but for placing a mortgage on it.

Q. Any other case? A. LeRoy, New York. For sale, similar to this one.

Q. When did you value the Chicago Edison plant? A. In August, 1896.

Q. And the LeRoy plant? A. I think it was in the spring of 1898, I am not exactly sure of my dates on that.

Q. Any other cases? A. Not for sale, that I remember.

Q. Then your experience in valuing electric light plants for purpose of sale has been confined to the two you have mentioned—Chicago and LeRoy? A. I don't remember any other now.

Q. The Chicago case was a case of consolidation? A. No.

Q. Didn't the Chicago Edison buy up a lot of smaller plants? A. No, sir. It was previous to that.

Q. That was done previously? A. This estimate was made previous to that time. Simply on their old plant.

Q. Your valuation was made before the present company was finally made up, or before it had incorporated all the other

companies in Chicago? A. Well, do you mean—there have been two increases of the Chicago Edison Co. There were included in this estimate I made two or three small plants. They cut very little figure in the estimate I made; but since that time—within the past year, I think—they have consolidated all the suburban plants in the neighborhood. That was not in this estimate.

Q. In LeRoy you had a case similar to this? A. Yes, sir.

Q. What do you mean? A. The city voted to take the gas and electric plants. Commissioners were appointed to determine its value, and make the award, and an examination was made, and I appraised the electric light power plant, just the same as this one, a similar case.

Q. Did you testify for the company in that case? A. Yes.

Q. That was a case, was it not, where the property was taken by eminent domain? A. I think so. I really am not familiar with the law under which it was taken. I was asked to place a value on it and testify as to that, and that is all I did.

Q. The franchises of the company were taken in that case, were they not? A. Everything was taken that they possessed.

Q. Including all their rights in the streets? A. Yes. Simply, the business was taken over from them. It was not taken away from them, but that was the award that was made.

Q. My question is whether you in that case included all the franchises that the company might have had in the public streets? A. I placed no value on it as such.

Q. But that is what the city took, isn't it? They took the franchise that the company had? A. Certainly, if they had any; I don't know whether they had any or not.

Q. Whatever rights the company had in the streets the city took in that case, didn't they? A. Yes.

Q. Did you value that property on the basis of earnings? A. I think not.

Q. You simply gave its structural value? A. As I remember now, I gave simply its structural value.

Q. Simply its structural value, although all the property and rights of the company were taken by the city? A. Yes.

Q. You did not include earnings at all in that case? A. I don't think I did. I don't remember particularly about that, but

I do not remember that I paid any attention to the earnings at all. I think it was simply the structural value.

Q. Then why did you say that that was a case like this? Or rather, if that was a case like this, why do you take earnings into account in this case? A. My statement of "a case like this" was simply—— I did not mean specifically any point in it at all, except that it was a case where property was condemned and taken over, and I was asked to value it for that purpose.

Q. But you did not take account of earnings in that case, you say? A. I don't remember that I did; I don't think I did.

Q. Pretty sure, aren't you? A. Yes.

Q. Why have you taken earnings into account in this case? A. Because I think it is right and necessary.

Q. Why? A. I think I explained to Mr. Brooks that—that the company was being deprived of a certain amount of property—that is, they were being deprived of a certain income which they had worked a long time to get and spent a great deal of energy and money, and I think it was only fair that that should be returned so as to bring in a similar income.

Q. Why was not that fair too in the case of LeRoy? A. I don't remember, I am sure. I don't think the matter came up. I don't remember any detail about it, except that I know I made the structural value on it.

Q. And you testified for the company? A. Yes.

Q. Can you explain any more fully than you have to the Commission why you made the valuation based on structural features alone in the case of LeRoy, and in the case of Holyoke you have made a valuation based on earnings? A. I cannot explain any further about LeRoy, and it seems to me that I have explained enough about the other, but if I can add anything to it I will be very glad to.

Q. Can you explain, Mr. Foster, why you made a difference in your basis of valuation? A. No, I cannot. I do not remember, as I say, anything in detail about the LeRoy plant, except that I placed a structural value on it.

Q. You do remember that you were a witness for the company in both cases, weren't you? A. Yes.

Q. You do remember, do you not, that you did not take earnings into account in the LeRoy case? A. I say I think not.

Q. But simply structural value? A. That is all.

Q. Now you have taken earnings into account in this case, and my question is why you made the difference? A. As I do not remember about the first one, I cannot explain why I made the difference. The only explanation I can give is why I placed the value of earnings here.

Q. And you cannot give any explanation why you left out earnings in the case of LeRoy at all? A. No, I cannot.

Q. Who were the commissioners in this case? A. I do not recall the names; I have heard them.

Q. This case was tried in 1898, wasn't it? A. I should say it was tried early in the spring; I do not remember, I am sure.

Q. What county in New York was it tried in? A. It was tried in the town of Batavia; I do not remember the county.

Q. What were the names of the parties? A. The village of LeRoy was one, and I think it was the LeRoy Gas and Electric Light Company or the LeRoy Gas Company; I am not sure just which it was called. A man by the name of Bissell was the owner.

Q. Versus the village of LeRoy? A. LeRoy, yes.

Q. Who was the manager of the company, do you say? A. I think D. J. Bissell was the manager of the company.

Q. Do you remember who the commissioners were? A. No, I do not; I do not remember their names at all.

Q. Do you remember who the counsel were on either side? A. No. A man by the name of Randall was counsel for the city—or for the village, rather.

Q. Do you remember his name? A. I don't remember anything but the last part. A local attorney of Batavia was counsel for the other side, and I never could remember his name; a well-known man there.

Q. You cannot give us the names of the commissioners? A. No, I cannot.

Q. You gave testimony at some length in that case? A. I think I was about an hour; possibly not as long as that.

Q. And you are unable to explain to this Commission why you take earnings into account in this case and did not in the LeRoy case?

Mr. BROOKS. I object to that.

The CHAIRMAN. You have asked the question five or six times, Mr. Matthews. I do not criticise it, but I simply say that inasmuch as it is objected to——

Mr. MATTHEWS. I thought possibly as all these names had been stated——

By the CHAIRMAN.

Q. Does this bring back any reason, Mr. Witness? A. Not at all.

Mr. MATTHEWS. Then I will pass from it. I do not want to annoy the witness by repeating questions——

The CHAIRMAN. Oh, no.

Mr. MATTHEWS. But after he had stated the names of these various gentlemen, I thought possibly that might refresh his recollection as to why he had made this distinction.

By Mr. MATTHEWS.

Q. You said a moment ago, and also, I think, in reply to a question by Brother Brooks, that you had based your valuation predicated on earnings upon the fact that the company had been deprived of its property? A. Or would be deprived of it.

Q. Would be deprived of its property. Do you understand that the city has taken the property of the Holyoke Water Power Company? A. No, not at present.

Q. You understand that this is a voluntary proceeding on the part of the Company or not? A. It is voluntary as far as their own proceeding goes, perhaps, but involuntary in the fact that the city allows them nothing else to do.

Q. How do you make that out? A. If the city takes away their business it is practically depriving them of their property.

Q. How do you make out that the city is taking away or has threatened to take away the business of the Company? A. By its vote.

Q. What has it voted to do, as you understand it? A. As I understand, they have voted simply to have a gas and electric lighting plant of their own.

Q. The city has voted to establish a plant of its own, hasn't it? A. Yes, that is as I understand it.

Q. Does that take away the property or the business of the Holyoke Water Power Company? A. I should so consider it, yes.

Q. Does it do so to any greater extent than any competing company would? A. Yes.

Q. Why? A. Because they take all the city lights away, and that is a large part of the business.

Q. It is a very large part of the business of the Holyoke Water Power Company, isn't it? A. Of this particular department.

Q. Of the electric light department, I meant? A. Yes.

Q. The public business constitutes a rather larger percentage of the business of this Company than usual? A. Not than usual, but perhaps than many plants.

Q. A good deal larger than the business of the Company that you spoke of a moment ago, the Chicago Edison, for instance? A. Oh, yes, decidedly.

Q. You have assumed, then, in the first place, that the city of Holyoke has voted to establish a gas and electric light plant? A. Yes.

Q. Both? A. Yes.

Q. And to undertake both a gas and electric light business? A. Yes, I have assumed that.

Q. And to supply both public and private lights? A. I would so understand it, yes.

Q. Your opinions of value are based upon the assumption that that is equivalent to a forced sale by the Company? A. Yes.

Q. There is a public lighting plant in Chicago, isn't there? A. Yes.

Q. Did that affect your valuation of the property of the Chicago Edison Company? A. Not at all.

Q. Suppose the city of Holyoke had voted or should vote simply to establish an electric light plant for the purpose of supplying the public streets and buildings, what effect would such a condition of affairs have upon your estimates of value? A. I think it would have very little effect.

Q. Very little? That is exactly what they did in Chicago, isn't it? A. Yes.

Q. But you said that your value of this Company's property was based upon the assumed fact that the city was going to deprive it of its property and business? A. Yes.

Q. It would not deprive it of very much business, would it, if it simply established a public plant for lighting the streets and public buildings? A. You mean Holyoke?

Q. Yes. A. Why, yes; I said before that the public business in this particular town of Holyoke was a considerable part of the business, whereas in Chicago it was nothing at all. The conditions are not at all parallel.

Q. Don't you think that some of these unused opportunities that you have described would enable the company to fill up the gap caused by the loss of the public lights very quickly? A. Why, possibly. If they should work very hard they might be able to get enough commercial lights to cover the present number of arc lamps. That is a hard job, though, in that case, but it does not seem to me that that would—

Q. Don't you think that this unused opportunity for the distribution of the electric current for power would enable the company to fill the gap caused by the loss of public lights very soon? A. It might.

Q. On your theory it would, wouldn't it? A. Which theory is that?

Q. On your theory that there is this unused opportunity which could readily be exploited by the city? A. Yes, some.

Q. Didn't you say that you thought the gross receipts of this Company could be increased 50 per cent. in two years by working up the business of supplying current for power?

Mr. BROOKS. Do you realize, Mr. Matthews, if you will excuse me the suggestion—

Mr. MATTHEWS. Certainly.

Mr. BROOKS. —that the city's vote comprehended both light and power?

Mr. MATTHEWS. I know what the city's vote stated, and I do not understand that it comprehended either, necessarily.

Mr. BROOKS. I understand that it does, so far as the statute is concerned.

Mr. MATTHEWS. We understand that the city voted to exercise the power conferred upon it by the act of 1891 and its amendments.

Mr. BROOKS. That gives them both the right to light and to sell for light and power.



Mr. MATTHEWS. Undoubtedly that gives the city the right to establish an electric light plant for both power and light purposes, and also a gas plant, and to operate both plants for public and commercial purposes. That is undoubtedly so. But we say that it is not at all certain that the city is going to do anything of the sort. The city has not yet voted what kind of a plant it will establish, and when it reaches that point it may vote to establish only a plant to light the public buildings and the streets of the city.

The CHAIRMAN. We will take the witness' answer.

Mr. MATTHEWS. That was rather an aside.

Mr. BROOKS. It came upon my interruption.

(Question read.)

A. I remember that I said they could be increased 50 per cent.; I don't remember the time,—whether it was two years or five years.

Mr. MATTHEWS. I thought you said two years.

Q. If that was so, that would more than supply the gap caused by the loss of the public lights if the city should establish simply a plant for lighting its public streets and buildings?

A. It might do that. I think it would change the conditions some, though, if the city lights were taken away from them. Possibly the opportunities would not be so good, more especially so because in taking away the city lights it might disturb their pole lines and circuits, so that they could not distribute so well, and then it might take away the opportunities. Of course my statement of increased output was based wholly on their retaining the same position and condition of everything as it is now.

Q. And your estimate of value—that is, the larger estimate, not the structural value estimate, but the larger estimate of value which you placed upon this plant—is predicated, I assume, upon the continuance of the same conditions which you now find?

A. Yes.

Q. With respect to the absence of competition? A. Yes.

Q. With respect to prices? A. That I did not take into consideration, but there might be a small reduction of price and yet be that.

Q. With respect to the franchises or rights in the streets which the company has? A. Certainly; I assumed those as being permanent, or as permanent as such franchises are usually.

Q. And you assumed that the business of the company would continue at least as profitable as at present? A. I assumed it would continue as at present; that is, in the lines of the present.

Q. And that the consumption of electricity would continue as great as it is now? A. As great in proportion.

Q. And that the earnings would continue? A. Yes.

Q. As large as they are today? A. Yes.

Q. You say you made a valuation of two Boston companies for the Massachusetts Board of Gas and Electric Light Commissioners? A. Yes.

Q. When was that examination made, and what companies did it embrace? A. The Boston Electric Light Company in the fall of 1895, and the Edison Electric Illuminating Company of Boston in February, 1897.

Q. Were those structural valuations, or valuations based on earnings? A. Structural, purely. The instructions were to make a structural value, purely.

Q. Have you received any instructions in this case as to the basis of your valuation? A. No, no specific instructions; no.

Q. None whatever? A. I don't remember any really specific instructions. I was asked to place a value on the property by the Holyoke Water Power Company.

Q. What was the nature of the valuation which you placed upon the property of the Chicago Edison Company? A. That was a duplication value.

Q. A duplication value? A. A duplication value, so-called, so specified.

Q. What is your understanding of the difference between a duplication and a structural value? A. There is no very marked difference, but perhaps I could explain it best by my instructions from the foreign syndicate. They were, to value the plant as to what it would cost to duplicate the same in the position and condition that it was.

Q. How does that compare with what you have done in this case for a structural value? A. In that case there was very little depreciation allowed. It was simply what would it cost to duplicate this plant as it is and where it is.

Q. You mean to say what it would cost to furnish and install a wholly new plant identical in all its parts with the plant under

consideration? A. That was practically what was asked for in that case.

Q. That is what you call a duplication value? A. Yes.

Q. Not taking into the account the depreciation, if any? A. No.

Q. In the existing plant? A. If there was any depreciation in that case we simply stated what we thought the condition of the machinery was, or something of that sort. There was no depreciation asked for at all.

Q. For what purpose were these two valuations made by you for the Massachusetts Gas Commission? A. To enable the Gas Commission to determine whether under the law they could allow those companies to increase their issue of securities. I think one asked to issue more stock and the other one asked to issue both, more stock and more bonds. The Boston Company, I think, was the one that asked it double, but I am not so sure about that; it may be bonds alone. The Boston Edison Company asked simply to issue an extra amount of stock to cover the installation of further material and apparatus.

Q. And the Boston Company asked to issue both stock and bonds for similar purposes, I suppose? A. Somewhat similar purposes. I believe at that time they asked to issue an amount of stock or bonds to take care of a large floating debt that they had; but really, that part of it did not come into my part of the valuation, and I am simply telling you that from hearsay; that is, hearsay from the Commission. It is not valid, perhaps.

Q. You understood that those valuations were made for the purpose of applying the anti-stock watering statute, so-called, of 1894? A. I don't know the date nor what it was called, but I understood it was a statute for that purpose.

Q. And the object of your employment was to ascertain whether the stock and bonds then outstanding exceeded or not the structural value of the company's assets? A. Yes.

Q. Was the result of your work published in the annual reports of the Gas Commission? A. No more in detail than to say, in the case of the Edison Company, that an examination of the property was made and that they were allowed to issue the extra securities that they asked for. In the case of the Boston Company they were allowed to issue securities for a certain

amount of new work that they were to do, but not to cover the floating debt, and so much of it was explained in the report, I think to the extent of perhaps half a page or a page.

Q. The figures which you reached were not given in the report? A. Not at all; no detail of any kind was published.

Q. What experience have you had in managing electric light stations? A. I was superintendent of the East River Electric Company for a year or a year and a half. My work has been almost wholly in the engineering, though.

Q. Any other company? A. No.

Q. And you have had no experience in the actual management of an electric light plant, except to the extent that you had to do with the East River— A. I believe that is all.

Q. What do you call it? A. East River Electric Company.

Q. East River Electric Company? A. I beg your pardon; that may have been East River Electric Light Company. I think that was the name.

Q. You have never been the superintendent or manager of an electric light company operated by water power? A. No. I beg pardon. I was engineer for the Harrisburg Company, which was operated almost wholly by water power.

Q. Consulting engineer? A. Yes, and a director of the company.

Q. Consulting engineer and director in what? A. I think the name was the Harrisburg Excelsior Electric Light Company. It may have been the Excelsior Electric Light Company of Harrisburg. That would cover it. It was a good concern.

Q. What experience have you had in the installation of electric light plants? A. As engineer for the Philadelphia Thomson-Houston Company, I engineered and estimated on the cost of whatever came into the office at the time, and I drew a set of plans, and devised a lay-out and set of plans for small standard stations that might be put up throughout the state by that company. I think they were afterwards used in many instances.

Q. Have you had any other experience than that? A. Superintending the installation? The Yonkers Electric Light Company—the Thomson-Houston Electric Light of Yonkers, was the name, and the North New York Electric Light Company, now out of existence.

Q. Any others? A. The Hudson Electric Light Company of Hoboken, N. J.

Q. Any others? A. I don't recall any now.

Q. Did you install a complete plant for any of these companies? A. No, they were all organized companies before I became engineer for them.

Q. And all had an existing plant? A. Yes, part of a plant. Let me modify that a little. At the Harrisburg plant the building was under construction when I took hold, as was also the North New York Lighting Company, and all of the machinery was installed under my supervision.

Q. All this work that you did was done some years ago, wasn't it? A. Yes.

Q. You have not done any work of this sort for five or six years past? A. Oh, since 1891, I think.

Q. You have not had charge of installing electric light works since the year 1891? A. No, I have not.

Q. And have you been the manager of an electric light company since that year? A. No.

Q. You have written considerable, haven't you, on the subject of electric lighting? A. Yes, I presume you might call it considerable. I was editor of two journals on the subject.

Q. What journals were those? A. Electrical Industries of Chicago, and Electric Power of New York.

Q. What do you call it? A. Electrical Industries, a monthly journal in Chicago.

Q. And the other one? A. Electric Power.

Q. Give the dates, please, of your connection with both of those. A. The first of May to the 13th of September, 1893, for the first.

Q. May 1st, 1893, to September 1st? A. September 13 was the exact date.

Q. Of 1893? A. Yes.

Q. And Electric Power? A. I can't give you the exact dates on that, but, say, the spring of 1894 to the spring of 1895, about a year. It was a little over a year, but I can't remember the dates exactly. Yes, away into the summer.

By the CHAIRMAN.

Q. What was the name of your paper? A. Electric

Power. May I modify that a little? I think that connection ceased in 1896, on that last one.

Q. You had that paper for more than a year? A. Yes, I think about a year and a half; I don't remember the dates at all. I left that because other business pressed so that I couldn't give it attention.

Q. Can you state what you have written for publication on the subject of electric lighting? A. It is a little difficult. I may give some. I have written a little on almost all of it. Could you ask me more specific questions?

Q. I asked you to give a list of articles you have written on the subject of electric lighting. A. I can't do it; I can't remember them.

Q. Give us any of them. A. I compiled an article on the condition of municipal plants.

Q. In what periodical did that appear? A. The Electrical Engineer.

Q. What was the title of it? A. The title of it, I think, was "Municipal Electric Lighting." You will have to excuse me from giving the headings, because I don't remember them.

Q. In the Electrical Engineer? A. That was in the Electrical Engineer, yes.

Q. For what date? A. 1894 some time, I don't remember the date.

Q. What else? A. "Variations in the Rules of Inductance and Variations in the Results Reached by the Various Rules for Calculating Inductance in Electric Wires Adjacent to Each Other." This was one of many which were quoted abroad.

Q. Can you give us any more? A. I think a similar article on the capacity of wires, the inductive capacity of wires. I cannot recall the articles on electric lighting, because they were miscellaneous and had to be written every month or every week.

Q. Why do you say they had to be written every month or every week. A. I was the editor and had to supply them for the purpose, that is all. Some were critical editorials, you might say, on the work.

Q. You were not editor of the Electrical Engineer at any time? A. Oh, no. I have written editorials for them, though.

Q. What other articles have you written that you can recall

on the general subject of electric lighting? A. Recently, within a year, that is, almost a year ago now, I wrote an article on municipal lighting in reply to one by Professor John R. Commons.

Q. Where and when did that appear? A. In the *Electrical Engineer*, May 4th, 1898.

Q. Are there any other general articles, leaving out the technical ones? A. Why, I wrote a series of articles on the bookkeeping of electric lighting stations at one time. They were papers incorporated in book form, and are now sold as the standard form of bookkeeping for electric lighting stations.

Q. What is the title of that book? A. *Central Station Bookkeeping and Suggested Forms*. I might say that it also includes bookkeeping for street railways.

Q. Is there anything in that book as to the amounts that ought to be charged or the allowance which ought to be made for the various items of expenditure? A. I think not, but I do not recollect. It was written a long time ago. I don't remember that at all.

Q. When were the articles written or when was the book written? A. I think that book appeared in 1893. It may be 1894. I am not so sure of the date. But the articles in the *Engineer* were written two or three years previous to that time.

Q. Can't you refer us to any other articles on the general subject of electric lighting, municipal or otherwise, except the two that you wrote for the *Electrical Engineer*, and which you have given us? A. I don't recall any now off-hand, Mr. Matthews. I would be very glad to name them for you.

Q. Have you ever written anything upon the cost of operating electric light stations and properties? A. Possibly, but I do not recall in regard to that.

Q. Haven't you ever written anything on the cost of power for electric light stations? A. I don't recall now. I may have. As I say, I can't remember all these.

Q. Haven't you written a general article on the cost of power, or several articles on that subject? A. I don't recall any that I have written that were initiative. I may have written some that were criticisms of others on the same subject. I think I have, but I do not recall them now.

Q. Where would those be found? A. I guess in any of the journals. They were copied in every one of them.

Q. What were they written for? A. Usually for the Electrical Engineer, except such as I published in Electric Power, and those were not on that subject; they were more technical.

Q. Haven't you written a special article, or any article, on the cost of power in electric light stations? A. I don't recall any. Really, I would be very glad to acknowledge one if I found it. I don't recall any at this moment.

Q. Is there any other gentleman in your profession of the same name as yourself, H. A. Foster? A. I think there is one in Ohio.

Q. The same initials? A. The same initials, but not the same first name.

Q. What is your full name, please? A. Horatio A.

Q. Do you know his full name? A. Henry, I believe, but I am not sure. I adopted in writing my full name, in all articles of my own, for that reason, that there was another with the same initials.

Q. Is there any other Horatio A. Foster who would be likely to write upon electrical subjects? A. I think not.

Q. Do you remember reading any paper before the Society of Electrical Engineers on the general question of steam and electric power? A. I didn't read one, but I published one before them. It was not a comparison of steam and electric power at all. That was simply an article which was a copy of a report that I rendered to the Cataract Construction Company on the cost of steam power under existing conditions. It had no relation whatever to electric power, and none to electric stations, other than that two electric lighting stations were included in the list, and they were two very different kinds, very different systems and very different locations; and they were simply taken as samples that were available at the time. The rest of the paper was based wholly on the cost of steam power under existing conditions without any regard to theories that might govern it.

Q. Where was that published? A. In the Transactions of the American Institute of Electrical Engineers.

Q. That is not the same as the Electrical Engineer? A. No; this is the American Institute of Electrical Engineers. This paper was in their transactions.



Q. The transactions of what? A. Of the American Institute of Electrical Engineers.

Q. And what year and month did that appear in? A. The month was May.

Q. That is, the paper was read in May? A. The paper was read in May. Let me see if I can remember.

Q. What year? A. That is what I was trying to remember. I think it was May, 1897. I think I am right on that. May, 1897, I believe was the time.

Q. Are those transactions published more than once a year? A. They are published monthly. They are issued whenever the papers come out, every month; but the transactions are bound once a year and the volume issued to members.

Q. And we could find this article in the bound volume of the transactions of the electrical engineers for the year 1897? A. Yes, sir.

Q. Have you ever written anything on the question of depreciation as affecting electric light plants? A. I think I have, some; and especially in this article I mentioned, written on the 4th of May of last year, or rather, it appeared in the edition of the Electrical Engineer for the 4th of May of last year.

Q. Do you remember any other article that you have written upon that subject—depreciation? A. Not specifically. I presume I have alluded to it in every article of that nature I have ever written, but I can't recall them.

Q. You have only mentioned two articles of that nature, one written in 1894 and the other in 1898. A. Those are the only articles I recall.

Q. But there were others, you think? A. There may be; I don't recall them at all.

Q. You have written a good deal, haven't you, at various times, upon the subject of municipal ownership of electric light plants? A. I don't know what you call a good deal; I have written perhaps considerable.

Q. There have been more than these two papers? A. Yes, I think there were.

Q. And where did the other papers appear? A. They would all appear in the Electrical Engineer, if at all.

Q. And always over your full name, Horatio A. Foster?

A. Yes, always. I have used the full name for the reason stated, that there was another of the same initials.

Q. Do most of these papers consider the subject of depreciation?

Mr. GOULDING. I suppose the contents of the papers are not competent.

The CHAIRMAN. I suppose it is a matter of identity, that is all.

Mr. MATTHEWS. That is all. I do not want to look them up if they do not contain anything on this subject.

Q. Do most of these papers that you have referred to contain a discussion of the subject of depreciation as affecting electric light plants? A. I think most of them contain more or less allusion to it. I say most of them; it is a pretty wide statement; I can't recall. I know that some of them do.

Q. Do you remember what views you have expressed in these various papers on that subject?

Mr. BROOKS. I suppose that should be answered by yes or no. We do not object to that.

The CHAIRMAN. He asks if you remember what views you have expressed?

A. In a general way, yes.

Q. Were they not somewhat different from the views you have expressed on the witness stand today?

Mr. BROOKS. That we object to.

Mr. MATTHEWS. I suppose that if we had the papers here we could call the witness' attention to them, and put extracts from them in evidence.

The CHAIRMAN. You do not happen to have them here?

Mr. MATTHEWS. I have only one.

The CHAIRMAN. It is unfortunate, but since the objection is made, I think we will have to sustain it.

Mr. MATTHEWS. I have one at the hotel. It seems to me the witness can be asked, any way.

The CHAIRMAN. Wherein his views differ?

Mr. MATTHEWS. Yes.

Mr. BROOKS. That is really asking him for the contents.

Mr. MATTHEWS. He has not identified the papers with sufficient accuracy yet to enable us to get them.

The CHAIRMAN. You can ask him whether he has always entertained these views.

Mr. MATTHEWS. I will put that question, then.

Q. Have you always entertained the same views regarding the amount that should be allowed for depreciation in an electric light plant that you have expressed this morning? A. Practically so.

Q. Have you ever entertained the theory, or advocated the view, that as much as seven or 7 1-2 per cent. should be allowed for depreciation?

Mr. BROOKS. We object to that, because I suppose that it is sought to get round the rule with reference to the contents of a written document by asking this general question, and it seems to me it should be discovered whether these views were discussed or stated in print.

The CHAIRMAN. It seems to me that on cross-examination it is competent to call the attention of the witness to whether he has entertained contrary opinions. You can put the question, Mr. Matthews.

Mr. BROOKS. Then I wish to except.

Mr. MATTHEWS. I will withdraw the question for the time being.

Mr. BROOKS. Then I will withdraw the exception for the time being.

Q. How did you estimate the buildings? I don't think you explained to Mr. Brooks this morning your method of valuing the buildings. A. With the exception of the wheel house, the boiler house and the stack, and the main building, I valued them, valued all the rest of them, mostly by going into the details as to the number of bricks, and the pounds weight of material, and the excavation, and all detail of that sort.

Q. Which of the buildings did you value in that detailed manner? A. Well, only the penstocks, wheel pit and tail-race.

Q. You said all but certain buildings. Please state in the first place what you valued by getting the quantities in the detailed manner that you refer to? A. The engine house, I think, was the only building that I estimated, and I beg pardon, I want to modify that answer. That building was estimated in the common way we have, by the cubic foot.

Q. I think the best way is for you to take up each building, in order to state how you appraised each one, beginning with the wheel house. A. The figures on the wheel house I took from the estimate by Mr. Allen.

Q. What do you mean you took from him? A. The total. By Mr. BROOKS.

Q. The total what? A. \$2047.

By Mr. MATTHEWS. \$2047.50? A. Yes.

Q. That was not your estimate at all? A. That was his estimate, and checked, not only by my own judgment, but by the valuation rules that we use in estimating, by the common rule for estimating.

Q. What do you mean? A. Why, by the cubic foot. Outside of New England in getting an estimate of the cost of a building it is very common to determine the cubic feet of contents inside of the outside measurements of the walls, the measurements being taken on the outside wall, both length and breadth, and from the eaves to the bottom of the foundations, and applying to that a factor per cubic foot, that is, a number of cents per cubic foot, known by experience to apply to similar buildings.

Q. How did you apply that rule to the wheel house? A. I divided this \$2047.50 as shown here——

Q. Excuse me for interrupting here. That was somebody else's estimate reached by detail? A. He reached that by detail.

Q. Detailed quantities? A. I believe so.

Q. He reached it in some different way from yourself? A. Yes, sir.

Q. And you took his result, and you are proceeding to state what you did with it? A. I divided by the number of cubic feet indicated in the building, 22,772.

Q. That is, you found the cubical contents of that building from the bottom of the foundations to the eaves? A. Yes, I think the dimensions are given in detail.

Q. Then what? A. Why, simply the result reads, the cost per cubic foot that I considered as checking closely with his estimate, and I simply took his estimate after telling him I was going to.

Q. What was the cost? A. I haven't it right here.

Q. What should it have been? A. Why, 8 or 9 cents, 10 cents, something like that.

Q. Can't you tell us exactly what you allow in ordinary practice as the cost per cubic foot for a building of that character?

A. Well, a building of that character, I should want to examine the building of course. It would be from 6 to 12 cents.

Q. According to the character of the building? A. Yes, sir.

Q. Take a building of that character, what should be the cost per cubic foot? A. I have figured it in my mind as 8 cents.

Q. That you think would be a fair price? A. Yes.

Q. What does Mr. Allen's estimate figure out? A. About 9 cents.

Q. Then that would be about a cent higher than you think the building ought to cost? A. Well, about that.

Q. But you still took Mr. Allen's figures? A. I took Mr. Allen's figures simply for the reason he had gone into the detail of it, and I was rather more willing to take his figures than to go on my own estimate.

Q. That includes the foundations? A. There are no foundations in the wheel-house, as they set on the wheel-pit.

Q. What there was in the way of foundation was included? A. Yes, sir.

Q. The next item, "head-gates and racks,"—pages 35 and 37. How do you get at them? A. Page 35 shows all the details.

Q. Before I come to that, you considered that the figure of \$2047.50 which you set against the wheel-house as your structural value of that building, represents the cost of building such a house new? A. No. I considered that was its value now.

Q. How did you get at that, as distinguished from cost of building new? A. I didn't try to distinguish. On that particular building Mr. Allen gave his value as at present. I should consider it so, at least.

Q. It wouldn't cost any more to build new, would it? A. I don't understand.

Q. Would it cost any more to build the wheel-house new?

A. It might. I don't know. I don't know whether any depreciation.

Q. When you estimate 8c. as the fair cost per cubic foot for such building, you mean a new building, without any allowance for depreciation or anything else? A. Yes, you might say so. I should say fair cost for it for the first ten years, whether built, or in existence.

Q. Fair cost for a new building? A. If you call it a new building in ten years.

Q. What do you say it ought to cost to build such a building? I thought you said 8c. per cubic foot was the fair cost to construct such a building. Am I correct in assuming you mean to say 8c. per cubic foot, or 9c., is the fair cost of building such a structure? A. Possibly, yes. In this particular case, that is a figure we use in estimating the cost of buildings that are not old buildings.

Q. It is what you use in estimating the cost of a building that is not yet built, isn't it? A. I cannot tell.

Q. Suppose you have plans, and are trying to make an estimate of the probable cost of the structure, you use for a building of this sort the figure of 8c.? A. Possibly you would.

Q. That is what you meant? A. I meant as applied to this building.

Q. How old? A. Anything inside of 8 or 10 years. If older, we would have to calculate for depreciation of it.

Q. Did you, as a matter of fact, allow anything for depreciation on that? A. I have not. I have not calculated on any depreciation at all. I should estimate the value placed here as of the time they were valued.

Q. How much depreciation do you understand was taken into account then? A. I didn't take it into account, didn't figure it that way; didn't take it into consideration.

Q. You say nothing was allowed for depreciation on the wheel-house. Turn to pages 35, 36 and 37, and take "head-gates and racks." A. Yes.

Q. Do the figures on those cases indicate the present cost new, or do they indicate what the cost would be new, as well as some sum for depreciation? A. I don't think I allowed anything for depreciation at all. As I remember, I made it to cover

the time it was made, with the less prices there may have been in seven years' time. Prices taken as of 1898. I don't think I considered depreciation.

Q. You didn't take prices for material and labor that obtained in 1891, but did take the prices of building and material in 1898, so far as you could get at them? A. Substantially.

Q. And then estimated the cost of the various buildings upon that basis of 1898? A. Yes, sir, excepting the four buildings I spoke of.

Q. We will come to that in a moment. In respect to those I have touched so far, that is the cost you found, and allowed nothing for depreciation. A. I think I allowed nothing—only for changes of prices.

Q. Otherwise you allowed what you thought it would cost to build those particular structures? A. Yes, sir.

Q. To what items of building in those schedules of yours does your statement apply, that you took the prices in 1898 and proceeded to find the cost of the building new, without depreciation, beside the wheel-house item, and the item for head-gates and racks? A. May I put that in a different way?

Q. Certainly. Any way. A. If you will check the wheel-house, boiler-house, stack and breeching, and main building.

Q. What of those? A. Those are the four I told you I took Mr. Allen's figures for, and checked them by the application of this rule per cubic foot.

Q. You figured all the others up yourself? A. Yes, sir.

Q. That is, you figured up yourself the value of the head-gates, penstocks, fender in front of head-gates, wheel-pit, tail-race, engine house and foundation, connecting tunnels and wiring? A. Yes, sir.

Q. All those items you figured up yourself? A. Yes, sir.

Q. Those items I understand are the ones which you reached by taking the prices that obtained in 1898 for labor and materials, without making any allowance for depreciation? A. Substantially so.

Q. The other four wheel-house, boiler-house, stack and breeching, and the main building, you reached by simply taking Mr. Allen's figures. A. And checking them by my own judgment, and application of certain rules we had.

Q. You took Mr. Allen's figures and checked them off by applying your cost per cubic foot rule? A. Excepting in the matter of stack and breeching, which could not be done.

Q. You applied the cubic foot rule to Mr. Allen's estimate of the wheel-house, and you found his figure was all right on that basis? A. Substantially correct, according to my judgment.

Q. And did not differ substantially from what the cost ought to be of such building new, figured per cubic foot? A. Yes, sir.

Q. Is the same true of the boiler-house and the main building? A. Yes.

Q. What do you say the boiler-house should cost per cubic foot? A. In the neighborhood of 8c. or 9c. I have forgotten now. You can easily tell.

Q. How can you tell? A. I simply divide that by this amount you find here.

Q. I am not asking what Mr. Allen's estimate figures per cubic foot, but what your judgment is as to what the cost of such a building should be per cubic foot. A. Same as before. About 8 cents.

Q. Eight cents for the boiler house as well as for the wheel house? A. Substantially so, yes. There would be a little difference in favor of higher price on boiler house, because it has monitor roof.

Q. It is a larger building? A. Yes, sir. Substantially one story. In this part of the country it is two stories.

Q. Take the main building, including the foundation; what do you think? A. About the same.

Q. Stack and breeching? A. The stack and breeching I figure by the amount of brick and other details. I figured out that sum. I was not quite familiar with the price of building stacks here, and I thought his figure came so close to mine I would use it, and state it so.

Q. What is your own figure? A. I don't remember what it was.

Q. Haven't you the details of your own estimate of the stack and breeching? A. Not here, I don't believe I have got it.

Q. You have the quantities I see on page 4 for the stack and breeching. A. Yes, sir. Those are the quantities given by Mr. Allen. I don't think I used those.



Q. Are those Mr. Allen's quantities or yours? A. Mr. Allen's. I beg pardon. I think not. Those quantities were made up subsequent to my estimate, and if I am not mistaken, subsequent to his estimate. We both had quantities not so much in detail. We had the amount of brick, lumber and masonry. Nothing in the matter of the casting on top. I might be able to find those details.

Mr. BROOKS. Are you talking about stacks?

The WITNESS. Yes, sir.

By Mr. MATTHEWS.

Q. Who did prepare these quantities? A. Mr. Sawin.

Q. Neither Mr. Allen or you used them? A. I think not. We had the main figures. I think we had the—this is purely on my memory—we had the piles, the brick work, I believe the stone work and the breeching. I don't remember all those other details. All this detailed estimate was made up a month after I made my report, and I obtained the items I speak of—that is, the main items, like the number of brick laid, and the number of piles, and the amount of stone work. I cannot tell you exactly what it is.

Q. Have you here the estimate you made yourself? I am talking about the stack and breeching? A. Not here. May be at the hotel.

Q. You made an estimate of all these four items. A. Yes, sir.

Q. You made an estimate of the cost of the wheel house, boiler house, stack and breeching, and the main building, didn't you? A. I did for stack and breeching. The other I think I did.

Q. Why didn't you use your figures and your results? A. I didn't consider myself familiar enough with building to be anything like sure of it—especially building in this particular region.

Q. Why did you use your own valuations for the other items beside the four for which you used Mr. Allen's? A. They were very near to his. I could have used his figures or mine, and not made any difference.

Q. Why didn't you use your own consistently throughout? A. I didn't consider myself familiar enough with general building to do that.

Q. Then why didn't you use Mr. Allen's throughout? A. I might have done that. They were very close; within a very few dollars.

Q. Why did you sometimes use your own figures, and sometimes use Mr. Allen's figures? A. I don't know how I can answer that any differently than I have.

Q. There are 11 items there all told, aren't there—11 items relating to buildings? A. Yes.

Q. And in the case of four of them you took Mr. Allen's results, while you took your own results for the other 7? A. Yes.

Q. Why did you do that? A. As I say, I am not particularly familiar with the cost of building, especially in this region, and I thought he was very much better able to judge closer of that than I was. On the other figures, where we made them in detail, we came so close together I could use either.

Q. You didn't come so close on the four items where you took his figures? A. No, sir.

Q. What were your figures for the four items? A. I don't know.

Q. Have you them with you? A. No, sir.

Q. Are they in that book you have there? A. No, sir.

Q. Are they at the hotel? A. Probably they are.

Q. Will you look for them and produce them? A. Yes, sir, if I can.

Q. Would you say that you felt qualified to express an opinion as to the value of any of these buildings—any of the 11 items—situated as they are in the city of Holyoke? A. Yes, everything with the exception of the four buildings I have named. Those I could have valued by going into the details as all did afterwards, but I didn't do it, because I told Mr. Allen I should take his figures in that case, and check them by methods I thought correct. The others I got market prices upon the material for.

The CHAIRMAN. There are some photographs shown me this morning. Is there any objection to the Commissioners looking at them?

Mr. MATTHEWS. I think not.

(Photographs marked "3 Photographs of Electrical Buildings W. C. G.")

By Mr. MATTHEWS.

Q. You will get those figures tomorrow morning, will you?

A. Yes, sir.

Q. Then substantially all the buildings which you estimate to cost \$122,715 have been estimated at what they would probably cost to build at the prices of labor and materials obtaining in 1898? A. Substantially so, yes.

Q. All the machinery, I understand, has been estimated by you at what it would cost to procure and install at the prices obtaining in 1898? A. Yes, sir, minus, of course, depreciation.

Q. But the only allowance for depreciation is that which is deducted at the end of the calculation—that is, \$24,276. A. Yes, sir.

Q. There is no deduction for depreciation in the different items aggregating \$126,123? A. Other than that that is shown on pages we had under discussion awhile ago; page 57, etc. Go back to page 54. I will give the items in detail. Page 54 and 55.

Q. Those allowances for depreciation that you have figured in Table A and Table B make the difference in the aggregate of \$24,276? A. Yes, sir.

Q. Which is deducted from the total of structural value? A. Yes, sir.

Q. Now, my question—which I don't think you understood—is this: whether in the valuation of machinery aggregating \$126,123, there is in any of the items going to make up that aggregate any allowance for depreciation? A. Nothing other than that this \$24,276 is the depreciation on this amount.

Q. Excepting which there is nothing in the \$126,123? A. No.

Q. All the machinery is figured at its cost new upon the prices obtaining in 1898? A. Substantially so.

Q. Why do you add charges for freight and labor in various parts of your schedule, when you have apparently included the cost of installing the machinery? For instance, on page 8 you have so much for extra armatures, and so forth, all set up, and then you have another item, freight and labor, \$75? A. Page 8?

Q. Yes. A. I think there are only two machines that are described as set up.

Q. What is freight and labor for? A. Why, freight and

labor on these armatures, freight, getting them into place, boxing; freight and labor is an item that covers boxing and freight and cartage, and handling, and a number of items which it is difficult to specify, and it is what I have added to the amount of \$1200, \$75 for miscellaneous items of that sort, thinking it would be more nearly right. I have said it will be on two items of \$1200. And \$75 I did not deem at all extraordinary.

Q. Wouldn't the cost of freight and labor be included in the expression "set up"? A. In some of these cases I have not included the price for the machine as set up.

Q. Did I understand you to say that in getting at the value of the machinery you took certain price lists? A. Yes.

Q. Have you those price lists here? A. They are in Holyoke in the hotel. They are the General Electric price lists.

Q. Will you bring those here tomorrow morning? A. Certainly.

Q. All the price lists that you have used in making up this estimate? A. I can bring nearly all. There is one I think that I got locally in Holyoke. That is for general tools. Perhaps the amount of stuff would not amount to \$500. Hammers, and so forth. General machinery, such as shafting, water wheels, and so forth, I can bring you the price lists for.

By Mr. BROOKS.

Q. You will have those here tomorrow? A. Yes, sir.

By Mr. MATTHEWS.

Q. What do you say about the use of small unit dynamos, such as this plant contains? A. I wish you would be more specific, Mr. Matthews.

Q. What do you say about the use of small unit dynamos, in comparison with the use of larger unit machines? A. I think in this particular case they are justified.

Q. They are not commonly put in, are they, so small as this? A. Well, you refer to all the machines, or merely——

Q. Would it be common practice, good commercial practice, today, if you were installing an electric light plant of the size of this, with reference to its capacity, to use so many, 21 machines, varying in capacity from 16 to 50 lights? A. While it may not be the style today, I doubt if there is any difference in economy, that is, difference enough in economy between the two, to

warrant doing anything else. Considering this plant as it is, I consider those dynamos are all right, just as they are.

Q. What do you mean by not being the style today? A. I mean electric lighting plants have been built on fads. One man gets a style that he thinks pretty good, and they go by that, irrespective of any change in efficiency, or no change in efficiency.

Q. You mean it is not the ordinary practice at present to install an electric lighting plant consisting of so many small unit machines? A. You might say that, yes.

Q. Will you look at page 12, please? A. Yes.

Q. I call your attention to an item, 285 Schuyler 9.6 ampere single carbon lamps, \$20 each, making \$5700? A. Yes.

Q. Haven't you got that 100 too many? A. I think not.

Q. Where did you get the figure 285 from? A. As I remember, I got it from the original list that was furnished by the Company.

Q. Were you here when Mr. Winchester gave his testimony? A. Yes, I believe I was.

Q. Don't you remember that Mr. Winchester testified that the largest number of commercial arc lights that the Company has ever supplied was 184, and that at the present time they are supplying about 170? A. No, I don't remember that.

Q. You have this item headed "Arc Lamps Installed"; you assumed, I suppose, that they were supplying 285 of these commercial arc lamps? A. Yes, sir.

Q. And if, as matter of fact, they were supplying only 185, there would be only that number installed? A. There would be only that number in use. The others might be in the station, perhaps.

Q. Those in the station are the 73 that come after the 285? A. I think that is right, yes.

Mr. BROOKS. Do you make any question that we have not got 285 Schuyler's?

Mr. MATTHEWS. Installed, yes.

Mr. BROOKS. I don't care whether they are installed or not.

Mr. MATTHEWS. It makes considerable difference whether they are installed, or not. We understood Mr. Winchester to testify that the maximum number of lights was 185.

The CHAIRMAN. What does the schedule say?

Mr. MATTHEWS. The schedule says 285.

Mr. BROOKS. And we have 285. We have found 285. I don't understand they are all in use at the present time. I understood Mr. Winchester to testify there was a certain maximum in use then, a certain number, but that they were not all lighted at the same time.

Mr. MATTHEWS. It may be that is so, but that was not the impression his testimony made upon me. It is a small point.

Q. You don't know what the fact is about it? A. I took this from the list. I counted very nearly all of the public lamps, but the other commercial lamps I did not. I assumed that the list was correct, and I assumed they had got to turn that many over to the city, anyway, and that number could be checked off at that time.

Mr. BROOKS. 285 Schuyler arc lamps is what we understand.

Mr. MATTHEWS. In the schedule it is 285, but I understood Mr. Winchester to say 185, and I thought possibly that was a mistake. But it may be 285 installed, and only 185 in use.

The WITNESS. I presume my heading is slightly misleading.

Mr. MATTHEWS. Referring to page 327 of Vol. I. of the testimony, I see that Mr. S. B. Winchester states that his company is supplying in the vicinity of 170 commercial lights. Now, that may have been a misunderstanding on his part of my question.

Q. You said something about the difference between double and single carbons. Will you explain more fully with reference to the desirability of each of these lamps? A. It is not a question of desirability, particularly, because the double lamps are a necessity in a case of this sort, as the lamps are burned all night, every night in the year, and of course the average length of time of burning is about 11 hours, slightly less than 11 hours, and it sometimes amounts to 14 and again to about eight, and it takes the double carbon lamp to last that length of time. The single carbon lamps will last easily, perhaps, the eight hours. It depends on the quality of the carbons, and the nature of them. It is not necessary to use other than the single carbon for commercial practice.

Q. You consider that those lamps are as good as any in the market? A. Of that nature, yes.

Q. What do you mean by that nature? A. Why, arc lamps for this particular use. I do not know how to explain it exactly.

Q. You mean for public lighting? A. Yes, sir.

Q. Isn't there a general tendency to substitute the inclosed lamps? A. In very large cities, yes.

Q. Does it make any difference in respect to the size of the city? A. Some, yes.

Q. Why should it? A. I suppose large cities make enough money so they can afford it.

Q. Other things being equal, those are considered better? A. It doesn't give anything like as good a light.

Q. But you say they are being substituted? A. Yes, for the benefit of the Company, perhaps.

Q. I see that you have added your interest charge, or your allowance for interest, on \$200,000. That is, you have taken 3 per cent. of \$200,000. You explained why you took 3 per cent., being interest at 6 per cent. per annum for one-half of the estimated period of construction? A. For one-half of the estimated period of construction.

Q. Why did you take \$200,000? A. Simply on the assumption that that was a fair amount.

Q. That is less than the total cost? A. Yes, sir.

Q. Which is about \$248,000? A. Yes, it is not based on anything, perhaps, except experience, my own opinion only.

Q. You strike the 10 per cent. for contingencies and engineering expenses on the whole \$248,000? A. Yes. That does not include the mill site nor the office furniture.

Q. That amount is \$248,838, which is the sum of \$122,715, being your valuation of the building, and \$126,123, your valuation of the machinery? A. Yes, sir.

Q. I do not understand why you strike your 3 per cent. for interest on \$200,000 only? A. I simply assume that as a fair charge. There is absolutely no guide in it at all.

Q. You assume the normal, average life for the different classes of machinery? A. Yes, sir.

Q. And you group the machinery for that purpose into two classes? A. Yes.

Q. One class you assume a life of 20 years for, and for the other class you assume a life of 40 years? A. Yes.

Q. And by that we are to understand the term of years at the end of which upon a conservative estimate the machinery may have become so depreciated by wear and use as to be practically useless? A. Yes, it may be best at that time to get new.

Q. You said in answer to a question of Mr. Brooks, that in all human probability some of the machinery would still be in serviceable condition at the end of your theoretic period? A. Yes.

Q. But it is also true that some of the machinery may have worn out before the close of that same period? A. Yes, some of the smaller values of it.

Q. Whether or not you did not take these two periods of 20 and 40 respectively, as the result of the best thought that you could give to the matter? A. Yes.

Q. As a conservative and fair estimate to both parties? A. Yes.

Q. And the depreciation which thereby results, as worked out in your calculations, allows for the impairment of the machinery through use and wear, does it not? A. Yes.

Q. Does it take any other element of change in value into account? A. No.

Q. The depreciation which you have allowed, \$24,275, is a depreciation due, or to be expected as due, from use and wear? A. Yes.

Q. And from that cause alone? A. That is it.

Q. Now, I would like to call your attention to an article which you wrote for the Electrical Engineer, found in the issue of May 12, 1898. A. Will you allow me to correct the date. I said May 4th.

Q. I suppose you had reference to the article which appeared May 12, 1898. I will ask you to identify the article from the copy of the Electrical Engineer which I hand you. A. Yes, that is the one.

Mr. MATTHEWS. I would like to offer this in evidence formally, and to read some portions of it.

The CHAIRMAN. As tending to contradict the testimony of this witness?



Mr. BROOKS. We would like to look at that article before it is read.

Mr. MATTHEWS. Having been handed to me by you, I thought you had seen it.

Mr. BROOKS. I told you we had it, and to save you trouble I kindly gave it to you. Are you going to put this all in?

Mr. MATTHEWS. Yes.

Mr. BROOKS. You say it tends to contradict him.

Mr. MATTHEWS. I offer it as throwing a lurid light on the subject of depreciation and I will give him every opportunity to explain away the contradiction, if any, that exists between this article and his testimony.

Mr. BROOKS. We submit that that is not contradictory of anything.

The CHAIRMAN. It seems to me that so far as the 7 1-2 per cent. proposition is stated, Mr. Matthews may go into it.

Mr. GOULDING. I hope your Honors will hear us at some time on an important law question. I do not understand that this article, in terms or in substance, contradicts anything that this witness has testified to. He is discussing generally the amount of depreciation that may be applied to plants as constructed somewhere in America. Can it be possible that that amounts to any direct contradiction of any evidence he has given here? If so, I should like to be pointed to the specific piece of evidence it appears to contradict.

The CHAIRMAN. I think that is fair. I think Mr. Matthews had better turn to that part of the evidence given on this subject.

Mr. MATTHEWS. I am trying to find my notes. I can ask the witness a few more questions which will make it clearer, perhaps.

The CHAIRMAN. Very well, go on.

Mr. GOULDING. Wait a minute. Is he going to testify to something to contradict?

Mr. MATTHEWS. One or two questions will make it very plain.

The CHAIRMAN. I think we had better have the notes read and find out what the witness has said.

Mr. Green called the attention of the Commission to the sum-

mary of the depreciation of the electric plant during the past seven years, already submitted by the witness, stating that the rate of 7 1-2 per cent. materially contradicted the present testimony of the witness, since he now allowed a matter of 2.4 per cent. only.

Mr. GOULDING. I submit to your Honors that it has no such tendency whatever. The witness has expressed no views in that article which in any way militate against the proposition that he here swears to, that this particular plant in Holyoke, as he finds it, ought to be depreciated in the way he sets forth in this article. The two things are not contradictory. They run parallel, and not opposed to each other. One is perfectly consistent with the other, and I take it you cannot put in as against this petitioner statements of this gentleman elsewhere, unless they directly tend to contradict his evidence here. It is not his general views about depreciation, taking a sweep of the eye over the whole United States, that contradict the proposition that in the particular plant he has found here the rate should be something different from what he said there, thereby applying a general proposition to this particular proposition.

Mr. GREEN. All I can say to that is that it seems to me counsel is arguing the effect of this rather than the admissibility, the weight of it rather than the fact as to whether it should be admitted at all. We shall argue to this Court that from the generality of his statement, from the fact that one dynamo in a given place is the same machine as another dynamo in the same place, that bricks are of the same quality, that these general statements here, which apply universally to various plants and machinery, are applicable to this particular one. To be sure, this is a single instance of a class, but when this witness makes so general a statement as he has made here, and generalizes as thoroughly as he has here, it is logical to apply his generalization to this instance, because his generalization must be made up from a large number of instances. We say whatever weight your Honors shall give to this afterwards, so long as he has made this general statement it is to be considered by the Commission. Of course I appreciate the fact that they can argue as they please about the weight of it, but it must be that it is admissible to contradict the very low percentage which he has used in this particular instance.

Mr. GOULDING. I should like to have somebody state how and where it runs counter to what he has said here.

Mr. GREEN. I think we can show that. Of course your Honors have to bear in mind that all of those pages were not read. We are to assume the Commission has read them. There is an elaborate argument in it as to allowance for depreciation. There is nothing in the argument to show that the machinery which is in this place is so much better than the machinery that he has been in the habit of dealing with that it is a separate and distinct entity, and cannot be considered like other plants. So far as we can see, and so far as that argument which he has printed is concerned, it is a general argument, treating this plant as he would treat any plant, drawn from his general experience, that a plant like this should be treated in a certain way, that as years go on we should consider certain machinery good for twenty years' life, certain other machinery good for forty years' life, and that the buildings practically are not to be treated as depreciating at all. That is the logical result of that argument. Now here is an article in which he says there is only one way in which we can consider these matters, and that is that every year you must allow for 7 1-2 per cent. depreciation on the total cost of the plant. I say those two statements are inconsistent, although one is a generalization and the other may be a particular instance, because I say that particular instance is nothing but a generalization in itself. We should submit to the Court that it would be very difficult to say why this particular plant possessed virtues whereby it would only depreciate at the rate of 2 per cent. a year, while all these others that he has generalized here should follow the rule that no plant should ever be computed on any less scale of depreciation than 7 1-2 per cent. a year. I submit logically that those things do not merge, although the learned counsel may say that one is a generalization and the other a special instance. We say that the two do conflict. This is a plant which he is valuing, and we ask him why this should be considered otherwise? Why has he departed from this rule which he has laid down, absolutely, covering this whole territory?

Mr. GOULDING. So far from covering the whole territory, he expressly said that Prof. Commons is mistaken in applying

the rules that govern the European plants to those here, showing that he is taking a sweeping view of the far east and of the general west, and what a man says about the far east and the general west, and the zenith and the nadir, the north pole and the south pole. How does that contradict the statement which he has made about a particular plant located on the face of the earth, in Holyoke? I never have heard the attempt made to contradict anybody before by a general discussion with reference to the poles and the fixed stars, and the remote outposts of the universe, like this article. He is really treating of the effect of municipal lighting, what will be the cost under municipal management—if you will look at the whole article.

The CHAIRMAN. The Commissioners have concluded that you may cross-examine him further, and call the witness' attention to any alleged inconsistencies between his article and the present statement, and make inquiries concerning it. Whether the article, or any part of it, becomes admissible, we will consider later.

Q. Will you turn to table A and table B in your schedule, pages 54 and 55? The total valuation of the machinery given, included in table A and table B, is what? A. \$128,623.

Q. Now, if you will turn to your summary on page 2, you will find the total machinery set down at \$126,123 only. How do you account for the difference? A. I imagine that that is in the wiring. Just let us see what the difference is first.

Q. It is \$2500. A. I think that the difference of \$2500 was the value of foundations under the shafting. I can find it here somewhere.

Mr. BROOKS. You find it, don't you, on page 55? That seems to read \$3500.

The WITNESS. \$2500, is it not?

Mr. BROOKS. \$3500 we have it here, under table B.

Mr. MATTHEWS. That would make the difference the other way.

Mr. BROOKS. I agree it does. He said he thought it might be the foundations. I was asking him about it.

The WITNESS. No; I think it is the foundation of the shafting.

Mr. BROOKS. Oh, all right; I didn't understand you.

Q. Where are those foundations of the shafting? A. I think I can tell you just where to find it. Page 26. Foundations for shafting, \$2500.

Q. Where is that item of \$2500 found in your summary? A. I think you will find that that \$2500 in the summary is included in the main building. You will find the main building included shaft foundations.

Q. What page is that? A. Page 1. In the summary. I have not separated it. It may be wrong, but I did it in that way.

Mr. BROOKS. So your summary remains unchanged?

The WITNESS. My summary remains unchanged.

Q. Let me call your attention to page 5. You find there the main building put down at \$30,450? A. Yes.

Q. Then in your summary it is \$32,950? A. Yes.

Q. And that is \$2,500? A. Yes.

Q. Then you have not included it in the machinery on page 26? A. Apparently not.

Q. That is, you have not transferred it to your summary as a part of your machinery. That is so, is it not? A. Yes.

Q. For the purpose of striking the depreciation account you counted the foundation as part of the machinery? A. I have in this case. It may be an error. I do not recall it just now.

Q. Oughtn't you, in accordance with your theory, to count the foundations as part of the building, and then ought you not to have a total sum upon which to strike the depreciation of \$126,123, instead of \$128,623? A. I should think that would be a fair assumption. I have excluded the foundation for the engine.

Q. Assuming that your table A and table B are not to be corrected in that manner, will you figure out and state the percentage which the total annual allowance for depreciation bears to the total valuation of the machinery? A. That is, the relation that the \$2,505 bears to \$74,578.

Q. The relation that the \$2,505 in table A plus the \$568 in table B bears to the \$74,578 in table A plus the \$54,045 in table B? A. Otherwise, if I may say, the relation of \$3,073 to \$128,623.

Q. Yes, sir. A. Two and four-tenths per cent., practically.

Mr. BROOKS. It should be which—added or deducted?

Mr. MATTHEWS. I will ask him.

The CHAIRMAN. Beg your pardon?

Mr. MATTHEWS. The witness has stated that the \$3,073 which he allows annually for depreciation is 2.4 per cent. of the total valuation of the machinery.

The CHAIRMAN. Mr. Matthews, you have just started in on a new question; I think you had better wait till morning.

Mr. MATTHEWS. This is the same question, of course.

The CHAIRMAN. No, I understand, but you had better wait till morning; it is very near five o'clock.

Upon inquiry by counsel for the petitioner the Chairman stated that the Commissioners had concluded that they did not deem it necessary to take another view, reference to which had been made earlier in the day, but that if they found such a view desirable, they would probably take some evening for it.

Adjourned to Tuesday morning, April 25, 1899, at 9.30 o'clock.

## FOURTEENTH HEARING.

Springfield, Tuesday, April 25, 1899.

The Commission met in the court house at 9.30 A. M.

CROSS-EXAMINATION OF HORATIO A. FOSTER  
resumed.

Mr. BROOKS. I would like to put in these photographs of the gas plant. (Showing four photographs.)

(The photographs were marked "Photographs of gas plant, W. C. G.")

By Mr. MATTHEWS.

Q. Mr. Foster, at the adjournment yesterday you were stating that your annual depreciation, amounting to \$3,073, was practically 2.4 per cent. of your total valuation of the machinery, namely, \$128,623. A. Yes, sir.

Q. Being the sum of the items contained in table A and table B? A. Yes, sir.

Q. Now will you tell me what percentage this same annual allowance for depreciation of \$3,073 is of your total valuation for the machinery and buildings? A. Taking which figure?

Q. I should say you had better take what I understand to be the correct figure, \$248,838. A. Yes, sir.

Q. That is your total valuation of buildings and machinery? A. Yes, sir.

Q. What per cent. of that is \$3,073? A. 1.2, about.

Q. That is, your annual allowance for depreciation amounts to 1.2 per cent of your valuation of the entire plant—that is, of your structural valuation of the entire plant? A. It is hardly fair to say that, for the reason that depreciation is calculated wholly on machinery, and no depreciation whatever is allowed in the structural valuation on the buildings.

Q. Then you don't allow any depreciation on the buildings, but you do allow 2.4 per cent. on the machinery? A. In this case, yes.

Q. And the amount you allow for depreciation, which is 2.4 per cent. of your valuation of the machinery, is equivalent to 1.2 per cent. of your total valuation of machinery and buildings?

A. Yes, that is the mathematical result. It is hardly fair to consider that. 1.2 approximately. I think it is about 1.24.

Mr. MATTHEWS. I should now like to ask the witness some questions about the article, the admissibility of which was under discussion at adjournment yesterday.

Mr. GOULDING. We do not object to the questions to the witness, but to the article.

The CHAIRMAN. Our ruling was that you could cross-examine the witness, using the article, but the question of the admissibility of the article itself we should reserve. You can use the article.

By Mr. MATTHEWS.

Q. I will call your attention to the article you wrote for the Electrical Engineer, under date of May 12, 1898, particularly to the closing sentence in it, to this effect, namely: "7 1-2 per cent. depreciation is none too great to charge on plants as now constructed for municipal or private ownership." I will ask whether or not that 7 1-2 per cent. was not struck on the entire cost of the plant, including buildings as well as machinery? A. It was in the case of this article.

Q. You have written, I understood you yesterday, several articles beside this, which involved, in one way or another, this question of depreciation? A. To a greater or less extent.

Q. I will ask whether or not you have in those articles generally taken the ground that 7 1-2 per cent., or thereabouts, was the proper amount for depreciation?

Mr. GOULDING. We pray your Honor's judgment.

The CHAIRMAN. That is a proper subject for cross-examination. He is not obliged to say whether it is or not.

The WITNESS. Can I state that in a general way?

By Mr. MATTHEWS.

Q. Yes, state it in your own language. A. I think I have usually and in a general way taken that standard—perhaps not specifically, but just as I recall it now.

Q. That has been the general theory you have advanced?

A. Yes, sir.



Q. That the annual depreciation on an electric light plant, or the allowance for it, should amount to 7 1-2 per cent. of the entire plant? A. Of the general run of plants, yes.

Q. And I understand that you have intended in that opinion to take 7 1-2 per cent. of the cost of the buildings, as well as the cost of machinery? A. Yes, sir.

Q. Making the total allowance for depreciation of 7 1-2 per cent. on the entire plant? A. That is the general standard, yes.

Q. I notice in the article in the *Electrical Engineer* of May 12, 1898, this statement: "I am sure if Professor Commons had examined personally both financially and technically the over 250 plants that it has been my fortune to do, he would bear me out in the correctness of the rate I have assumed." I will ask you whether or not the opinion that you have expressed in this article and the other articles were based on the examination of a large number of electric light plants in this country? A. Yes.

Q. And how many in all should you say you had examined? A. I should imagine about 250 that I have intimately examined.

Q. Had you reference in that statement, or have you in your answer, to the work which you did for the United States Census? A. That, and other work in addition to it.

Q. How many plants did you examine for the United States Census? A. 160, as I remember it.

Q. Those were electric light stations in New York State? A. As I remember, I think that was about the number and I think they were all in New York State. I may say I examined four others elsewhere.

Q. Did your examination include places of all kinds and sizes, that is, communities of varying industries and sizes? A. All kinds.

Q. Did it include all the electric light stations in New York State? A. I think it did, as nearly as we were able to find them.

Q. That is, the 160 electric light stations that you examined were practically all in operation in New York State? A. Yes.

Q. And you must, in addition, have examined a great many others? A. I think so.

Q. You have examined two in Boston? A. Yes.

Q. You have examined two entire plants in Boston? A. Yes.

Q. And those plants consisted of several stations each, did they not? A. Yes.

Q. And you had examined properties in Chicago and elsewhere? A. Yes.

Q. And the opinion which you formulated for this article and other articles was reached as the result of that experience? A. Yes.

Q. May I trouble you for it, please? You stated, I thought, yesterday that you had examined besides these 160 electric light stations, a number of isolated plants in New York State. What do you mean by isolated electric light plants as distinguished from the stations? A. Why, a plant established for lighting one building alone, an office building, for instance.

Q. What we would call a private plant? A. Private plants, you might call them.

Q. The distinction in your mind between a station and an isolated plant is that a station is for the distribution of electricity through a community by means of wires strung in a public street? A. Yes.

Q. Whereas the other, the isolated plant, is for the lighting of a single building? A. Yes.

Q. And you took that experience into account, I suppose, in formulating this opinion? A. Hardly. They really don't come under the same head at all.

Q. Refer to the article of May 12, 1898, from which I have quoted, to Prof. Commons, and state what the reference to Prof. Commons means? A. In the December, 1897, issue of a review known as *Municipal Affairs*, published in New York by the Reform Club, there were two articles on municipal electric lighting, one written by Mr. Bowker, manager and vice-president of the Edison Illuminating Company, who took the side against municipal ownership, and another long article by Prof. Commons of Syracuse University, taking the side in favor of municipal ownership. It was a long article, full of details and figures, and he quoted Professor Frank Parsons of Boston University for his own side, and as against his figures, mine that were published away back in 1894 in an article that I wrote for the *Electrical Engineer* at that time, simply giving in a tabular form the results of an investigation that I made into the cost of electric

lighting by municipal plants, which was written without any bias of any kind, and he used those figures of mine, in parallel columns with Professor Parsons's, and analyzed them pretty thoroughly, and took occasion in the article, devoted perhaps one-third to a criticism of my figures, and especially on depreciation, and this article was written in reply to that, I may say not only in depreciation, but in criticism of my handling of fixed charges.

Q. I see in the article of the Electrical Engineer of May 12, 1898, that you refer to Professor Commons' article as having appeared in the Electrical Engineer of March 10, 1898? A. They reprinted both articles entire from Municipal Affairs.

Q. That is, the Electrical Engineer of March 10, 1898, and the publication called Municipal Affairs, of December, 1897, both contained articles to which your article in the Electrical Engineer of May 12, 1898, was a reply? A. Yes.

Q. The 160-odd electric light plants which you examined in New York State were private plants, or private property? A. They were all public. The 160 plants were public stations.

Q. Were they operated by private companies, or by municipal corporations? A. Only two of them were operated by municipal corporations.

Q. Out of the one hundred and sixty odd electric light stations which you examined for the United States Census, upon the strength of which you formulated these opinions, only two were operated on public account? A. I will modify that. There were more than two.

Q. Certainly, I only wish to get the number, Mr. Foster. A. Five.

Q. Five were operated on public account and the remainder of the one hundred and sixty were operated by private corporations? A. Yes, sir.

Q. When you said they were public stations, you meant not that they were owned and operated by the public, but that they supplied the public, as distinguished from isolated plants? A. Yes.

Q. Have you been in the habit of dividing up your depreciation charges, aggregating 7 1-2 per cent., among the different classes of machinery? A. I don't quite understand the question.

Q. In reaching your total figure of 7 1-2 per cent. as the annual allowance for depreciation, have you been in the habit of apportioning that amount among the different classes of machinery and buildings? A. Not often. The statements made there were made as of 7 1-2 per cent. covering the entire lot. I don't remember.

Q. Have you not at times, in the articles you have written upon this subject, stated varying percentages for different classes of machinery and buildings, averaging 7 1-2 per cent. for the whole?

Mr. BROOKS. That we object to.

The CHAIRMAN. We think it is admissible on cross-examination.

Mr. BROOKS. What he has said? The contents of some article?

The CHAIRMAN. Yes.

Mr. BROOKS. We will save that.

Mr. MATTHEWS. You may answer.

Mr. COTTER. What is the objection, Mr. Brooks?

Mr. BROOKS. Why, he is asking him what he has written, whether he has stated certain things in articles he has written, and I must say at the first blush I know no rule of evidence that would make that admissible on cross-examination or any other way.

The question was read by the stenographer.

Mr. BROOKS. I would like an exception to that.

The CHAIRMAN. I think, Mr. Matthews, upon reflection, that there is something of an objection to that. Mr. Cotter does also. You have a right to ask this witness on cross-examination whether he has stated, or taken a position in the past in which he has divided up his depreciation of percentages in the way that you refer to. You might modify your question.

Mr. MATTHEWS. That suggestion I gladly adopt.

The CHAIRMAN. The objection seems to be that the inquiry is with reference to a written article; that the article should be produced for examination.

Mr. MATTHEWS. The difficulty in this case is he has not identified the articles so we can produce them. I accept the suggestion and will withdraw the question, and put this:

Q. Have you not taken a position with respect to this question of depreciation as between the different classes of machinery, assigning a certain percentage to each, and also a certain percentage to the buildings?

Mr. BROOKS. Now if that position is taken in writing we object to it. In view of this previous question we think that ought to be determined.

Mr. MATTHEWS. I had always supposed we could ask an expert on cross-examination whether he had at any time expressed a different view.

The CHAIRMAN. We do not care to hear from you, Mr. Matthews. We admit it, Mr. Brooks.

Mr. MATTHEWS. You can answer that.

Mr. BROOKS. I except to it.

Q. Now, if you will go on.

(The question was read by the stenographer.)

A. I think I may have. I do not want to say certainly, but I think very likely.

Q. And the result has been that the average has amounted to 7 1-2 per cent.? A. I have usually called it 7 1-2 per cent.

Q. Of the whole? A. Yes.

Q. Are you able to state how you have apportioned that 7 1-2 per cent. among the different classes of machinery and buildings? A. No, I am not, just now.

Q. Do you think that that apportionment is referred to in any of the articles you have written on the subject? A. Very possibly, and probably.

Q. It is quite probable, isn't it? A. It is quite probable.

Q. And all those articles, you say, will be found in the Electrical Engineer? A. In general, yes.

Q. Have you expressed the opinion that there were various causes of depreciation besides the use and wear on the machinery?

Mr. BROOKS. I suppose that comes in subject to my same objection?

Mr. MATTHEWS. Yes.

The WITNESS. I think that is stated.

Mr. COTTER. Is that objected to?

Mr. BROOKS. Yes, your Honor.

Q. What was your answer? A. I think that is mentioned in that article that you read.

Q. Do you refer to this paragraph: "Prof. Commons very properly divides depreciation into three kinds, viz., 'depreciation by use,' commonly known as repairs and as such charged into operating expense; 'depreciation by competitive improvements'; and 'depreciation by replacement.'" A. Yes.

Q. That is a paragraph from your article in the Electrical Engineer for May 12, 1898. That is what you have reference to? A. Yes.

Q. Now will you explain what you mean by "depreciation by competitive improvement," and "depreciation by replacement"? A. In the early days of electric lighting, I might say when the majority of stations, or during the period when the majority of electric lighting stations were built and installed, the ruling prices for dynamos and other machinery in connection with them were very high. As the years went by those prices were very materially reduced, and reduced from a price which was, for the mechanism alone and considered as a mechanism, exorbitant, to a price which simply includes, at the present time, a fair manufacturer's profit, and enough to cover his expense of patents. That price has been quite material in electrical apparatus. Perhaps I may express it best by an instance of the Holyoke machines. The dynamos in that station, when they bought them, were valued at from \$3,500 to \$4,000 apiece; whereas at the time of the valuation that I made on them, a fair value was \$1,000.

Q. Each? A. \$1,000 apiece, yes. I speak as a sort of an average.

By the CHAIRMAN.

Q. What style did you value at \$1,000? A. The ones that I valued at \$1,000 were 50-light machines, and the 20-light machines would be \$400, the 30-light machines \$600, and so on. Some of those machines when they were bought, I have no doubt at all, although I know nothing about the figures I think I know their cost at that time—they cost, all the way from \$3,000 to \$4,000. The decrease in price, as considered in this article, and due, as it is named there, to competitive improvement, has been large, and is a large part of that 7 1-2 per cent.

By Mr. MATTHEWS.

Q. Would there be any such reduction in the cost of the buildings? A. No, perhaps not, although the buildings, you must understand, when you are talking of buildings in general and as related to by that article, do not mean a Hôlyoke dam or a Niagara Falls power house, which is liable to last 500 years; but it means the average electric light station. You take a few city stations and they have nothing to do with this case in the matter of proportion. You find a great many stations throughout the country of wood entirely, cheap frame buildings, and you find those of corrugated iron, you find those of brick not only of bad brick, but badly built and put together in such a poor way and with such poor mortar that they will fall down, the chimneys will fall in.

Q. I understand you to say that there has been a material reduction in the price of dynamos? A. Yes.

Q. Since when? A. 1885.

Q. Since 1885? A. Yes.

Q. Has there been much reduction in the past eight years? A. Yes, I should say in the past eight years there has been a considerable reduction.

Q. Nothing like what you mentioned, though, a moment ago? A. Oh, no.

Q. This article of yours in which you assumed 7 1-2 per cent. was written in 1898, wasn't it, last year? A. Yes.

Q. Assume two buildings of equal character, one built ten years ago and one built today, there would not be very much difference in the cost, would there? A. Perhaps not. I am not quite competent to say very much about that.

Q. In respect to copper wire, has there been much decrease in price in recent years? A. No, not in recent years, but as related to the time that that article describes or goes about, there is a very material decrease. When the majority of stations in use were installed, and as described or meant in that article, the price of copper wire was in the neighborhood of twenty cents. When that article was written, as a matter of fact, the price of copper wire was in the neighborhood of eleven or twelve cents.

Q. Is there anything in this article to indicate that you were writing of the year 1885 or of plants installed as far back as that?

A. Why, no, except that there have been so few plants installed since that time. In 1885 and from that time up to 1891 very nearly all of the electric light stations in New York state were installed. In fact, the 160 that I counted are probably not exceeded today in number; in fact, I think that you will find some of those have gone out of existence.

Q. But all those electric light stations as well as electric light stations generally, are constantly replacing their machinery, are they not? A. I don't say that in a general way, no. They make changes, and the larger ones make changes frequently, but the larger ones are a very small proportion of the number.

Q. What do you mean by depreciation by replacement as distinguished from depreciation due to competitive improvement? A. The matter of depreciation is largely a matter of opinion and conjecture anyway, and in this particular case and as related there, we assume——

By Mr. BROOKS.

Q. In which particular case? A. Referred to in this article. We assume for perhaps ease of book-keeping or perhaps fair methods of book-keeping and in order to spread a cost over a term of years rather than having it come all at once, that machinery will last a certain length of time; that is, that we can repair it and keep up the repairs, and those repairs are going to go into operating expenses; but there comes a period—it may be twenty years, it may be forty years, but we assume a certain amount in order to divide that entire re-cost or replacement among a certain number of years and spread the expense over it a certain length of time when it is not profitable to work that machinery or repair it any longer; we have patched it here and changed it there and fixed it up a little, but we find at that end of time that in our opinion if we change that machine and get another one we may get one that will be more economical or better fitted to do the work. Therefore that machine is sold for what it will bring, and we put in another one.

Q. That is what you mean—— A. That is what I mean by depreciation by replacement.

Q. Why is not that depreciation by wear and tear and use?

A. You may call it so; I think it is, largely.

Q. Is there not another depreciation caused by reconstruc-



tion and enlargement of the plant for the purpose of doing a larger business? A. That comes very frequently in the larger cities.

Q. Doesn't it come with a certain amount of frequency in any growing community? A. Yes, as a general proposition; yes. But if you take the whole say 160 stations in New York that I have described, I think perhaps you would find ten or fifteen per cent. of them have made any change, and not to exceed that, because there are many electric light stations in very small communities, communities that grow very slowly indeed, so much so that the electric lighting does not grow appreciably in a matter of five years.

Q. Take a community of the size of Holyoke, what are you able to state from your experience or knowledge concerning the occasional necessity for reconstruction or enlargement and respecting the depreciation due thereto, as distinguished from depreciation due to use and wear and competitive improvements?

A. Taking the dynamos as they exist there today, I don't know that I could specify any change that would be an improvement. As I said yesterday——

Q. No, that is not my question, Mr. Foster. A. I perhaps did not understand it.

Q. Perhaps I did not make myself clear. What, according to your experience, has been the history of electric light stations of this size or situated in a community of this size with respect to the occasional necessity for enlargement and with respect to depreciation due thereto? I am not speaking of Holyoke in particular, but of communities of similar size. A. It is a little difficult, Mr. Matthews, to adjust it to, for the reason that the Holyoke plant has Schuyler dynamos, which are just as efficient as the newest dynamos of today.

Q. I am not speaking about the dynamos in particular, but of the plant as a whole. A. The dynamo is the only thing that is changed to any extent; the other parts of the apparatus are rarely changed.

Q. Are not the buildings changed? A. Occasionally, but not where they are so well built as they are there.

Q. You examined the electric light stations in Boston? A. Yes, sir.

Q. Did you not find that there had been periodic reconstructions of those stations? A. Yes, and I think I mentioned to you it is in cities of a large size, where the business grows so fast, but not in smaller communities.

Q. What you mean is that where a business is growing fast there is an occasional or periodical necessity for enlargement? A. Yes.

Q. And that is a separate and distinct cause of depreciation, isn't it? A. Usually, yes.

Q. Have you examined the table of companies operating in 25 communities in Massachusetts that was compiled by Mr. Prichard? A. No.

Q. Have you taken occasion to discover how many of the electric light plants involved in that table had been partially or completely reconstructed within a short term of years? A. No, I have not examined the table and do not know what the cities were.

Q. I suppose you saw the table, didn't you, as a matter of fact? A. I don't think I did, Mr. Matthews; it was the gas table that I examined.

Q. You know what I am talking about, don't you? A. I have a faint recollection that he exhibited a table at the time that he was testifying on electric lighting.

Q. And that table included both gas and electric light plants? A. Do you mean the table that you asked me to add up?

Q. Yes. A. No, I don't remember. I don't remember it including electric light plants at all.

Q. You added up the gas part of it? A. Yes.

Q. But the table also included something about electric companies? A. I don't remember that at all.

Q. At any rate, you did not pay any attention to the table— A. None, whatever.

Q. In so far as it related to electric light stations? A. None whatever.

Q. And you have not made the examination or comparison that I suggested? A. No.

Q. With regard to the amount of depreciation due to enlargement? A. No.

Q. In making your sinking fund calculations you assume

that the fund accumulates at the rate of four per cent. per annum, or five? A. Four.

Q. Four. That is, you take the same rate for the accumulation of the sinking fund that you have assumed in your other calculation as the fair basis upon which to capitalize the net income of the Company? A. Yes. I may say that there was no relation between the two when I made them.

Q. But as a matter of fact, you took the same rate of interest? A. As a fact.

Q. Of course if the sinking fund is assumed to accumulate at a lower rate of interest, say three, you would have to make larger payments, wouldn't you? A. Yes.

Q. In the operation of a sinking fund the increase is more rapid during the last years of the term, isn't it? A. Yes, sir,—that is, an annuity fund. If you mean to put it in the way I have figured here.

Q. Yes. Where the fund is fed by annual payments which are estimated according to tables, its accumulation is more rapid toward the end of the term than at the beginning of it? A. Yes, sir.

Q. So, while you might get out of a sinking fund accumulating by annual payments in the manner you have assumed the full amount of the cost of the plant at the end of the theoretical term, you might not at any period during that term have a pro rata amount on hand? A. I don't quite understand that question.

Q. I will put it this way: Assume that you establish a sinking fund to produce \$100,000 at the end of forty years, that is created by annual payments equal to each other, isn't it? A. Yes, sir.

Q. At the end of that period you have your entire fund of \$100,000? A. Yes, sir.

Q. But at the expiration of ten years you will not have one-tenth of the fund? A. No.

Q. That is, the fund accumulates more rapidly towards the end of the term than at the beginning? A. Yes, sir.

The CHAIRMAN. The annual payment remains constant all the time?

Mr. MATTHEWS. Yes, sir.

The CHAIRMAN. All depends as to the life. There is the disagreement. If you agree on the life, there is no difficulty in figuring the thing up.

Mr. MATTHEWS. That is one aspect of the case.

By Mr. MATTHEWS.

Q. The life you have assumed for your machinery—viz.—20 and 40 years for the two groups—represents what you assume on a conservative basis to be the probable life of machinery of that class. A. In this particular plant only. I paid strict attention to that.

Q. Took the condition of the machinery in question? A. As shown in that plant.

Q. The life would not be any greater than if the machinery were new? A. I don't understand that.

Q. You would not assume a greater life for the present boilers than if those boilers were put in new today? A. No, under the same conditions.

Q. And the same is true of the other classes of machinery? A. Yes, sir.

Q. And the periods you have assigned as the probable duration of the machinery are predicated on the use of a reasonable amount of care in the conduct and handling of the machinery during the term, are they not? A. Yes; and under the care as shown by these machines themselves.

Q. Do you consider that good care has been taken of those machines as exhibited by their present condition? A. Yes, sir.

Q. Did you examine the operation of the plants? A. Somewhat.

Q. Did you consider it a well managed plant? A. Yes, sir.

Q. Are you able to state any way in which the management could be improved? A. No, I am not. It is difficult to split a man. They only have one man per shift, and I don't see how you could economize any. Certainly you cannot reduce it.

Q. You don't think the cost of operating the plant could be reasonably reduced? A. I don't see how it well could.

Q. You spoke of doing work for the United States Census, and you said something, I thought, about the results of that work having been published. State in what volume your results were published? A. They were first printed in a small pam-

phlet—which can be gotten any time by writing to the Census office. I think that same pamphlet was embodied in one of the volumes on “Manufactures,” because we came under that definition.

Q. What was the title of the pamphlet? A. I have forgotten.

Q. It was one of the “Bulletins”? A. No, sir. It was published as a sort of monograph. I think it was “Electricity.” I cannot remember. The heading was “Electricity.” Perhaps this afternoon I can give you the title. I cannot remember the title.

Q. I wish you would. I thought the pamphlet was all you did for the Census? A. It embodied the results, after a great deal of compilation.

Q. It embodied your results? A. Yes, sir.

Q. You wrote nothing further for the Census, further than that? A. No.

Q. Did that article, or pamphlet, include anything relating to the cost of operating electric light plants? A. I believe in tabular form it did. You understand that was written under the supervision and inspection of superior officers in the department. I did all the tabulating myself, and the tables were made by myself. I believe some of that was gone into, but I cannot say how thoroughly now.

Q. Was the scheme of the tables designed by you, or your superiors? A. As I had more experience, perhaps my influence was stronger in putting forth the tables as they exist.

Q. You adopted the classification of those tables as they exist? A. I wouldn't say adopted. I backed it up.

Q. You think the scheme was a correct one? A. At that time, yes.

Q. Was there anything in the pamphlet about depreciation? A. I don't remember that there was.

Q. There was an analysis of the cost of operating electric light stations? A. It is pretty long back. I don't remember the details at all. I imagine there was an analysis in it.

Q. You stated that ten per cent. was the customary or standard allowance for engineering expenses and contingencies of installation? A. Yes, sir.

Q. By that did you intend to include the miscellaneous and unforeseen expenses that are likely to present themselves in connection with the installation of a new plant? A. In part.

Q. Anything beside those? A. Engineering, of course. Engineering and contingencies, as it says. I think that covers the ground fully.

Q. That is, everything that would be apt to be expended between the inception of the scheme and the actual running of the plant that would not be covered by the manufacturers' estimates? A. Not wholly by manufacturers' estimates, but by the estimates plus whatever you estimate it would cost to get it in place or condition. Usually the theory of making estimates of that sort, as I understand it, and have practiced it, has been to estimate the cost of the apparatus as you buy it and pay for it to the manufacturer, to which is added the estimated or actual cost of putting in place and getting it in running order; in fact, embodying all the expenses you can think of that would go to get the apparatus into running order as a going concern. On top of that we add ten per cent. for engineering and contingencies. You may divide it as you please. It is customary to divide it in half, five per cent. for each.

Q. It is in that way you made up your estimates for this case? A. Yes, sir.

Q. How long do you think it would take to build this plant? A. Why, I have estimated it as a year. Conditions govern all those things. It might be possibly rushed, if there was occasion for it. It might take a year and a half. Circumstances govern those cases. I thought a year would be a fair average time that it would take to build and complete.

Q. You only allowed on your item of interest during construction six months. A. Yes, sir.

Q. On the theory that the capital would not have to be all furnished on the outset. The plant could be put in in one working season, couldn't it, without difficulty? A. I think so, if rushed.

Q. Between March and December? A. Yes, sir.

Q. You promised yesterday to get the price lists which you used. Have you them here? A. Yes, sir.

Q. Will you show them to me, please? A. Yes, sir. (Pro-

ducing price lists.) That is the shafting catalogue. That is the firm of which the shafting was bought.

Q. That is the catalogue of C. F. McMurray of Troy, N. Y? A. Yes, sir. Some of them are a little hard to obtain nowadays, because they include machinery which is not at the present time manufactured, except on special order.

Q. What machinery do you refer to of that class? A. Why, occasionally there is a piece of apparatus—I will name one piece especially; the circuit-breaker I described yesterday—the automatic circuit-breaker is found only in the Railway Catalogue of The General Electric Co.; while all the other apparatus described will be found in the other catalogues, or very nearly.

Mr. MATTHEWS. The witness produces 11 catalogues or price-lists of various firms.

The WITNESS. Most of those are easily produced in duplicate, if required. Some are rather out of date.

By Mr. MATTHEWS.

Q. In making your prices up you endeavored to get current trade catalogues? A. Yes, sir.

Q. And took those prices they contained? A. Those prices, modified in any such manner as I thought necessary to produce the results, as I have just indicated to you. I have used current discount in almost every case.

Q. Didn't you use current discount in all cases? A. I did where there were current discounts.

Q. Supposing there were not. Did you assume you could get the goods for a smaller price than there listed, and make allowance therefor? A. No. Some of the prices are not listed. They are not in current lists—in my schedule.

Q. Wherever you could find prices in current catalogues you took them without making allowance for cash discount? A. Yes, sir. They are not necessarily cash discounts. They are trade discounts.

Q. Are they stated in the catalogue as a rule? A. They are not as a rule. You will find them marked in there in some cases, and some cases I find I put them in. There is one catalogue, of The General Electric Co., which is not now printed. It contains some of the articles that are in the station—four or five different instruments. For instance, the Schuyler ammeter. They are not in the more recent catalogues.

Q. Because they are not made today? A. They are not made except on special order.

Q. How much machinery in this plant today is not made except on special order? A. Very little. The arc dynamos are made on special order.

Q. That is, the Schuyler arc light machines or dynamos are not now made? A. They are not now made as a general trade article.

Q. In order to get them you have to give a special order for them? A. Yes, sir.

Q. What concern makes them? A. The General Electric Co., as near as I know.

Q. So that, if you were to install an electric light plant to-day, you could not get Schuyler dynamos unless you put in a special order for them? A. No, sir.

Q. Besides the dynamos and the ammeters, is there any other machinery in this plant that is no longer manufactured except on special order? A. I do not recall any off-hand.

Q. Will you state how the company's overhead wires are insulated in this case? A. I think in the schedule it is stated, it is mostly underwriters.

Q. Where do you find that statement? A. On page 17 "Arc Lines mostly Underwriters. Incandescent triple-braid weather-proof." That insulation is simply a so-called insulation. It is a covering of braid, cotton thread or yarn, which is saturated, in the case of the underwriters, in, I guess it is lime. I don't remember. It is a white substance, anyway. That simply coats it, and fills the interstices of the thread. Weather-proof is a trade name given those wires that have been soaked in, well, apparently an asphalt compound. I don't know just what it is.

Q. Are all the wires of the company underwriters and weather-proof both? They are some one, and some the other. It says, "Arc lines mostly underwriters, Incandescent triple-braid weather-proof."

Q. Is the system called underwriters with the arc lines in general use today? A. In the older plants almost exclusively.

Q. But it is not used with the newer plants? A. No.

Q. What is the reason, do you know? A. Why, somebody seemed to think the weather-proof wire was a good deal better.



Results prove it is not. It is a little more sightly, because it is of a black color, and the white shows off a little more.

Q. How do you get this underwriters form, order it specially?

A. Yes.

Q. It is out of the market? A. Yes.

Q. Like the Schuyler dynamos and the ammeters? A. Yes. By the CHAIRMAN.

Q. Does it affect the working plant? A. The covering has absolutely nothing to do with the working of the plant.

By Mr. MATTHEWS.

Q. Doesn't it affect insurance rates? A. I don't think it does a particle.

Q. Do not the insurance companies charge more for the system of insulation adopted by the Holyoke Water Power Company than they do for more modern systems? A. That is hardly the same question, Mr. Matthews. In the more modern systems in some cases they might use rubber covered wire.

Q. Isn't that the best practice? A. That is good practice for some work, but they don't put that up for arc light work at all.

Q. Do not the underwriters charge more for the style of insulation for the arc light wires adopted by the Holyoke Water Power Company than they do for that in common use today? A. Not to my knowledge.

Q. Do you know what the insurance rates are? I mean liability insurance? A. No.

Q. You spoke about the armatures. I would like to ask whether or not these machines are liable to wear out in time? You have assigned a life for them. A. I have assigned a life for them, yes.

Q. How much? A. Twenty years.

Q. What life do you assign for the field of the dynamo? A. Why,—

Q. The same? A. The life of the dynamo as a whole I have assigned as 20 years. Really it is difficult to divide it. The fields, I should say, would last, I should say, oh, nearly as long as the cast iron. If they did not, it would only do some damage to the insulation.

Q. You have in your estimate of value assumed the same

liability to depreciation by use and wear in respect to the fields as in respect to the armatures? A. Yes.

Q. You think that assumption is safe and conservative?

A. Perfectly, because the armature, I must say, is always repaired at once.

Q. You spoke yesterday of ammeters and volt meters. I do not understand you meant recording meters of any kind?

A. There are no recording meters except in the customers' places of business for any circuits whatever.

Q. There are none at the station? A. I would like to modify that answer, because I don't remember whether there was a recording meter at the station or not.

Q. But you found no way of estimating the electrical out-put of the station? A. None, except by standing there, and recording by pencil or otherwise the indications of the indicating instruments at stated intervals.

Q. If you did that, you could make a rough computation?

A. Yes.

Q. But you did not understand the Company kept any records of the electrical energy developed at this station? A. No.

Q. Whether that is not done as a matter of fact in electric stations today? A. In a large proportion.

By the CHAIRMAN.

Q. In what way? A. Usually it is a blank form which is conveniently located to the indicating instrument, and periodically the operator of the station records on this blank the condition of the indicating instruments. In some stations it is taken every 15 minutes, in some every half hour, and in some every hour, according to the company, and its method of doing business, and the closeness with which the people wish to look after the results.

By Mr. MATTHEWS.

Q. In that way, Mr. Foster, the manager of the plant, or the owners of the company, can tell with reasonable approximation how much electric current they are turning out from day to day?

A. Approximately so.

Q. With considerable accuracy. A. Well, it depends largely on personality and the condition of things.

Q. And that knowledge enables them to obtain what the electrical fluid is costing them? A. Yes.

Q. I understood you to say a moment ago that this system of recording the electrical energy developed at the station is in common use? A. It is in common use. But not in a great majority of the stations.

Q. It is conceded to be the correct electrical practice, isn't it? A. Yes.

Q. If you were in charge of a station you would do it? A. Invariably.

By Mr. BROOKS.

Q. The record of the out-put? A. The record of the out-put every day.

By Mr. MATTHEWS.

Q. There is no way of doing that in this station, that is, there are no instruments? A. Yes, there are instruments.

Q. There are no recording meters? A. In these stations you are speaking of there are also no recording meters.

Q. Is it customary to have them? A. No, it is not, only in the very largest stations.

Q. By the use of them you can compute the electrical out-put rather easier? A. Yes, sir. In that case there is no reason to take readings except once a day.

Q. What are these recording meters? A. They look very much like a gas meter, except they have a round front.

Q. They have a paper dial on them? A. No, it is usually a porcelain, made like a watch dial, made up in the same manner as a watch dial.

Q. Then it is only necessary with this instrument to take a reading once a day? A. That is all you ordinarily do, as you do a gas meter.

Q. But even in the absence of those machines, you can by constant attention, every 15 minutes, or half an hour, or every hour, compute with a reasonable degree of accuracy the electrical out-put of the station? A. Yes.

Q. And that you say is commonly done? A. Yes. I modify that as I stated before.

Q. You would do it yourself— A. Yes, sir.

Q. If you were running a station? A. Yes.

Q. Do you know what the kilowatt capacity of the station is? A. No, I do not.

Q. Did you make any effort to ascertain? A. No.

Q. Do you know what the maximum load on the machinery, stated in kilowatts, is? A. No, I do not.

Q. Did you make any effort to find that out? A. No.

Q. You said the lightning arresters were proper. I think that was the word you used. That is, were proper ones to use? A. Yes. I don't remember whether I used that word.

Q. I think you did. A. I guess that will bear it out all right.

Q. Is it not proper to have them affixed to some substance other than wood? A. Not always. I suppose in two-thirds of the stations in the United States the instruments are attached wholly to wood; not only the wooden base, but are attached to a wooden frame.

Q. What is the case here, with the Holyoke Water Power Company? A. I think they are mostly on a porcelain base, but attached by a wooden frame-work to the wall. I do not recall that, really.

Q. Do you know what difference that system makes with respect to insurance rates? A. No, I do not.

Q. You mentioned a table of annuities you had used in preparing your sinking fund. Will you state the name? A. It is found in Kent's pocketbook. The table that I used myself I cut out of Kent's and pasted it into this book, but I think there is a copy in the room and you can find the table.

Q. I just wanted to know what table you used. A. Kent's Mechanical Engineer's Pocketbook.

Q. You stated that the boilers would be worth something even at the end of the theoretic term of life you assigned to them. A. I should say so, with the little use they have.

Q. I suppose that opinion was predicated upon the small amount of use they receive? A. Largely so.

Q. If they were used continuously they would not last so long of course? A. Probably not.

Q. If they were used 100 to 125 days in the year, instead of 5 or 6 days in the year, they would of course wear out sooner than under present circumstances? A. Based on that same theory, that is correct, in a measure.

Q. In reaching your value based on earnings, of \$503,630, you capitalize what you understand the net earnings to be at the rate of 4 per cent. per annum? A. Yes.

Q. And why did you take 4 per cent? A. I think I explained that yesterday in direct answer to that question.

Q. Will you state it again, please? A. That I thought the company was being deprived of an income, of a property which produced an income, a property on which they had spent a great deal of money and a great deal of time; and that I supposed the purpose of the law, perhaps, was to reimburse them for taking away that property; that I thought that the money they received from that property it would be difficult for them to invest in any way to get more than 4 per cent. I am inclined to think that they will have difficulty in investing it in as sure a thing as this is for more than 3 or 3 1-2 per cent. I assumed 4 per cent. as being a conservative estimate.

Q. Did you have in mind the current market basis upon which stock in electric light companies can be sold? A. Nothing at all; I know nothing about the stocks.

Q. You have no knowledge of the current price for electric light stocks in Massachusetts? A. None whatever.

Q. Are you familiar with the practices of electric light companies in Massachusetts with respect to allowances or charges for depreciation? A. Only in a slight measure. I occasionally look through the report, but I have not for a long time made a study, so that I don't know.

Q. Do you know what the practice of Massachusetts electric light companies is with reference to divisible earnings, or with reference to the amount paid out in dividends? A. No, I do not.

Q. Or with reference to the percentage of gross receipts which is paid out in dividends? A. No.

Mr. MATTHEWS. Have you that plan that was produced here yesterday, Mr. Brooks? Just let me see it, please.

Mr. BROOKS. The railroad plan, yes.

Q. You referred yesterday to a plan showing where a spur track could be run from the present location of the Boston & Maine railroad upon and into the lot which the company desires to convey to the city. A. Yes.

Q. Where would the coal pocket be constructed? A. The

coal pocket could be constructed anywhere under this track where it crosses the company's land, alongside the chimney. My preference would be to extend that track alongside of the building, and to have it of such height (which, owing to the character of the ground there, it could be), that the coal could be dumped from the car or shovelled from the car directly into the boiler house.

Q. This scheme for getting railroad facilities on to the land which the company is to sell to the city involves the maintenance of a spur track upon a portion of the company's land which is not to be sold to the city, doesn't it? A. Yes, apparently.

Q. Do you consider that to draw a line for the boundary of this lot so close to the buildings as is proposed will affect the value of those buildings in any manner?

Mr. BROOKS. How is that competent?

Mr. COTTER. The buildings that are included in the description, Mr. Matthews?

Mr. MATTHEWS. Yes, sir. The witness has valued the buildings at a certain sum. I am inquiring whether that is a fair valuation in view of the fact that the boundary line is placed in close proximity to the windows on one side of the buildings.

Mr. BROOKS. Our position is, of course, that the Commission has the authority and right to enlarge this location if it sees fit.

Mr. MATTHEWS. My question would be admissible on that theory, too.

The CHAIRMAN. You may be right, Mr. Brooks, but on one theory this evidence is admissible, we think. We will state it if you desire.

Mr. MATTHEWS. We should also claim it was admissible on Mr. Brooks' theory.

The CHAIRMAN. Perhaps so. The evidence is admitted, any way.

A. I have not given that any consideration in the valuation of the buildings, and I should say it would be desirable to have a little more land, that is, to move the boundary in two or perhaps three places.

Q. Will you describe those places, and state also the distance which you think the boundary line should be from the other wall

of the buildings at those several places? You can describe them by referring to the buildings as designated on that plan. A. On the northerly side of the steam engine building the boundary, as shown by this drawing, is apparently very close to the building. The drawing does not show the distance, and I do not know how far it would be, but approximately 3 feet from the building would be as close as I would care to have it go.

Q. If the boundary was within 3 feet of the building, and someone put a building on the other side of the boundary, the light admitted to the boiler room would be seriously diminished, wouldn't it? A. Oh, yes.

Q. In other words, the building then would not be as available for its present purposes as it is today, would it? A. If I am not mistaken, there are no windows on the north side of that building.

Q. That is the boiler room? A. No, the engine room. There are two or three windows. I am not sure of that.

Q. Suppose that there are windows on a given side, on one of these buildings which it is proposed to convey from the company to the city, what, in your judgment, should be the distance of the boundary line from the wall with the window? A. This is the engine house, and that is the boiler house, and there are windows both sides.

Q. There are windows both sides of the engine and boiler house, are there? A. Yes, as shown here.

Q. Then you were mistaken a moment ago when you said you thought there was no window on the north side of the boiler house? A. I was entirely mistaken. The boiler house could be very nicely lighted from the roof. This is the company's land. This is the passageway through here.

Q. How far do you say the boundary line should be from the wall of any building which has lights in it, in order to make the building as suitable for the purposes of its use as it is today? A. I do not think that would make a particle of difference, if there are buildings up within 3 feet of those buildings, either one of them—not a particle of difference in the operation of the machinery inside. As to the lightness of it, and all that, the matter of, I might say, the sympathetic theory of the light needed inside for the man and his comfort, that would be one

thing; but for the actual operation of the machinery, I do not see that it would make a particle of difference. In fact, we have so many buildings in large cities where the walls are within 3 or 4 feet of each other, and offices are used right along—

Q. I do not ask you to compare these buildings with what you might find in large cities, but simply to compare the buildings as they are with the buildings as they would be if other buildings were put up within a short distance of them. A. It would not interfere with the light in the buildings if another building was put up within 3 feet of it.

Q. If another building were put up within 10 feet it would interfere with the light as compared with the present condition? A. Certainly it would.

Q. Suppose these buildings were used for some other purpose than that of an electric light station; for ordinary mill purposes, for instance; the interference would be still more serious, wouldn't it? A. It would depend entirely on the character of the work done.

Q. But the buildings might be used for such a purpose as to make the proximity of other buildings a serious drawback? A. They might, yes.

Q. In your estimate of the cost of the tailrace, have you included the entire structure from the first canal to the second canal? A. Yes.

Q. And what is the distance? A. I do not know the distance; I don't remember it at all. It is the distance between the first and second level canals. I am told it is 400 feet.

Q. About 400 feet, you think? A. Yes.

Q. Did you notice the thickness of the walls of the tailrace? A. No, because I didn't go into it. It is all under ground.

Q. You didn't examine the tailrace itself? A. No, I took another man's estimate for the quantities.

Q. You took another man's estimate for the quantities? A. The engineer of the company.

Q. Mr. Sawin? A. Yes.

Q. You took his estimate of quantities? A. Yes.

Q. And simply figured from them? A. Yes.

Q. At the prices for labor and material that obtained in 1898? A. Yes.



Q. Did you understand, or were you informed, that the walls had been built of extra thickness so as to permit the construction of buildings upon them? A. No.

Q. You did not take that fact, if it be a fact, into account?

A. Not at all.

By Mr. COTTER.

Q. You stated that the location of another building within 3 or 4 feet of this would not interfere with its adaptability to the present purpose. A. Not to any extent—any measurable extent.

Q. There would be light enough, you think, for the operation of the machinery in its present use? A. Yes. Of course you can imagine such a thing as this building being entirely surrounded by other buildings within 3 feet of it, which would materially shut out the light from the engine room. Even in that case I think there would be light enough to operate the machinery. But that is an exaggeration that I do not think is possible, because the land on the south side of the building is wide enough for a driveway.

By Mr. MATTHEWS.

Q. You would say, however, wouldn't you, that the construction of buildings so close to the present ones would interfere with the comfort of those working in the present buildings?

A. Oh, to some theoretical extent. I can't say. It is almost immeasurable. I do not know how much you would measure the difference in comfort between the present distance and any such distance as that.

Q. Are not these buildings, lighted as they are, more valuable for the purposes of their use, in your opinion, than if the light was partially obstructed by the erection of buildings within 3 feet? A. Yes.

Q. You have not sought to put any value upon this plant by comparing it with the cost of installing an entirely new plant such as would be erected today, have you? A. None whatever.

Q. Is it not the present practice of electric light companies or the best recognized practice to build stations fireproof?

A. The larger stations are almost always built that way; that is, those in large cities, where it makes a considerable difference,

but not in cities of this size, no; not any more fireproof than this is. This is known as mill construction and is almost as good as fireproof.

Mr. GOULDING. There is much of this evidence, if your Honors please, that we shall claim is wholly incompetent for any purpose. I suppose the range in cross-examination is somewhat large. Take the last two questions; we claim that they are in themselves not competent evidence, and by our silence we do not want to seem to admit that they are. So far as they are intended to impeach the witness or test his qualification, they may in cross-examination be competent.

The CHAIRMAN. Go on, Mr. Matthews.

Q. There is a second story in this building, isn't there, built of wood; that is, in the main dynamo room? A. There is a second story, yes, with a wooden floor, suspended from a truss.

Q. And that second story is used for storage and for a machine shop? A. Yes.

Q. Are you familiar with the kind of electric light station that is being erected today or has been erected within the recent past in Massachusetts in cities of similar size to Holyoke? A. I cannot say that I am.

Q. Have you examined into the cost of operating this plant? A. In no way except through the report of Humphreys & Glasgow.

Q. Did you attempt to verify that report by an examination of the books of the Company or of its returns to the gas commission? A. No.

Q. Your estimate, then, of the value of this plant based on earnings is dependent upon the accuracy of Messrs. Humphreys & Glasgow's analysis of the income and expenses and net earnings of the Company? A. Entirely so.

Q. And you took that analysis as correct? A. Yes, sir.

Q. Without any attempt at verifying it yourself? A. Yes, sir.

Q. Should not, in your opinion, the expense of liability insurance be charged to the operating cost of an electric light station? A. Of liability insurance?

Q. Yes. A. If they insure it certainly should be charged; but if they do not insure there is a question. A great many

plants do not insure at all; I have known plants to insure, and then throw it over.

Q. Supposing a plant does not insure against liability for accidents, should not, in your opinion, some annual allowance be made for that reason and included in the operating cost?

A. Not necessarily, no.

Q. Have you not at other times stated that such a charge should be included in the operating cost of an electric light plant?

A. I do not remember ever considering—giving any consideration whatever to liability insurance. I say I do not remember; if you can find an article I will be very glad to see it, but I do not remember giving it any consideration whatever.

Q. It is an existing risk, isn't it?

Mr. BROOKS. What is?

Mr. MATTHEWS. Liability for accidents.

A. You may so consider it. I do not know that it is a very great risk.

Q. In your opinion, is it proper to allow something in the annual expense account of an electric light plant in respect of the liability to accidents? A. I never should myself.

Q. You would not? A. No.

Q. Then if you had to pay \$5,000 or \$10,000 or \$15,000 some year, to what account would that go? A. If I had to pay such an amount as that it would probably be divided among a number of years; but I never should anticipate it by any means. Those cases are very rare.

Q. In electric light stations? A. Yes, for \$15,000.

Q. Supposing you had to pay \$5,000? A. Those are also rare.

Q. Have you any experience in liability insurance in Massachusetts? A. None whatever.

Q. Do you know what the Employers' Liability Act of Massachusetts is? A. No.

Mr. BROOKS. You may also say that there are not many lawyers who know.

Mr. MATTHEWS. They know the results. They may not know what the law is, but they know the verdicts that are rendered.

Mr. BROOKS. They know after the Supreme Court have

decided a case on a given state of facts what the law is in such a case.

Q. In forming the opinion that you would not take into account the liability for accidents, have you taken into account the peculiarities, if any, of the Massachusetts legislation on the subject? A. No.

Q. Now to come back to the question I asked you a moment ago: Supposing a company had to pay \$5,000 for an accident upon a jury verdict, how would that item of \$5,000 be charged up? A. If it was in a large company that could stand it all in one year, I would charge it to profit and loss at once.

Q. You would not charge it as an operating expense? A. No.

Q. Supposing the company had a large number of suits pending or brought each year? A. I should pay them as they were decided.

Q. And you would charge them all to profit and loss? A. Yes.

Q. That is, to capital? A. Understand, if it was in a large company that could stand it. If it was in a company in which it was going to be burdensome, I might very likely divide it up among a series of years.

Q. If this liability were burdensome you would divide it up? A. Yes.

Q. And apportion it among a series of years? A. Yes.

Q. And would you charge it to operating expense or to capital? A. No, to profit and loss.

Q. That is capital? A. No, that is not capital.

Q. You would not charge it to operating expense? A. No; that is a separate account by itself.

Q. Do you think that is the way Massachusetts electric light companies are managed? A. I don't know; I have no idea at all. That is my own book-keeping.

Q. You do not consider, then, the occasional liability or possible liability on account of accidents a proper charge against operating expense? A. On the theory that I have made I should say no. I should not anticipate it in that way at all.

Q. What would you say about the legal expenses of an electric light company?

The CHAIRMAN. We all agree that they ought to be large, Mr. Matthews.

Mr. MATTHEWS. They ought to be large, yes, sir; but the question is to what they should be charged. Apparently this company, the Holyoke Water Power Company, does not incur any legal expense at all.

Q. Whether in your opinion an annual allowance should be made in the operating cost of an electric light plant for legal expenses; meaning thereby the cost of defending suits and professional services of a legal nature that the company may have occasion to call for? A. It is no charge whatever to operating expenses.

Q. Legal services are not to be charged to operating expenses? A. None whatever.

Q. That goes to profit and loss, too? A. That goes to profit and loss.

Q. Do you know whether Messrs. Humphreys & Glasgow's estimate of the income and expense account of this company in its electric light business made any account of legal expenses, liability, or claims based on accidents? A. I don't remember any such item.

Q. Supposing an electric light company did not carry any fire insurance policy, would you say that anything should be charged up on account of the fire risk to operating expense or not? A. I never included insurance in operating expense in any case whatever.

Q. Even fire insurance? A. Even fire insurance.

Q. That is to say, fire insurance should also be charged to profit and loss? A. Yes. It is entirely outside of operating expense.

Q. Perhaps we are not talking about the same thing. In order to get at the net earnings of a company which are proper to be capitalized or paid out in dividends, do you mean the net earnings after deducting from the gross income what you call operating expenses, or the net earnings after deducting operating expenses as you define them and payments for legal services, accident and fire and liability insurance? A. And in fact any items included in profit and loss.

Q. Can you answer that question, or is it too long, as amended by yourself?

Mr. BROOKS. He did answer it.

Mr. MATTHEWS. He amended my question; he has not answered it yet. I accept his amendment; now I ask him if he can answer the question.

The WITNESS. Please read it.

The question and answer were read.

Q. Now can you answer that? A. I will try and answer it. I don't know how to give a direct answer to it. I do calculate the net earnings in that way.

Q. Well, in which way; the first way or the second way? A. The second way, as amended by my own—

Q. As amended by your first answer? A. Yes; otherwise, the net earnings are the operating expenses plus any other extraordinary expenses that may be charged to profit and loss during that period.

Q. You do not mean that, do you? You mean that the net earnings which you capitalize are gotten by deducting from the gross income, first, the operating expenses, and secondly, the items chargeable to profit and loss? A. Yes.

Q. And it is only the difference after deducting those two classes of expenses which you think it is proper to call net earnings? A. Yes.

Q. Do you know whether Messrs. Humphreys & Glasgow's estimate of net earnings was made upon that theory or not? A. I don't know anything other than was furnished me by their report.

Q. That is, you simply took the result of their report, the total amount which they reported as net earnings? A. After examining the items, of course, which were in their report, I took their report exactly as it stands.

Q. But if you were making up the calculation yourself you would, in the first place, take the gross income, wouldn't you? A. Yes.

Q. You would then deduct from that the operating expenses? A. Yes, sir.

Q. And you would then deduct from the balance the amounts charged to profit and loss by reason of liabilities and legal expenses and insurance? A. Anything that had been charged to profit and loss, yes, but no suppositious case.

Q. No. Anything that actually had been charged or ought

to be charged, you would deduct, and then the balance would be what you call net earnings? A. Yes.

Q. And you think that the balance could be paid out in dividends? A. Not always.

Q. Something would still have to be allowed for depreciation, wouldn't it? A. Oh, yes. I have made an allowance for depreciation in my calculation, and that, of course, should be included in these items that are chargeable to profit and loss. I supposed you had included that in the miscellaneous items that were chargeable to profit and loss.

Q. I want to simply get at your theory. You charge up, in the first place, certain items to operating expenses, about which we will assume there is no mistake, and then you charge certain other items, such as insurance, amount paid on account of accidents, legal expenses, etc., and your allowance for depreciation? A. Yes.

Q. Those you charge to profit and loss? A. Yes.

Q. Those, together with the operating expenses, you deduct from the gross income of the Company? A. Yes.

Q. And the final balance thus obtained, is what, in your opinion, is available for dividends? A. It is available for dividends or other methods of use. It is available for distribution.

Q. Among the stockholders of the Company? A. Yes, or in any other way they see fit.

Q. It could in any event be safely paid out in dividends? A. It could be paid out in dividends, yes.

Q. If it was not paid out in dividends it would not be fair to capitalize it at 4 per cent. or any other rate, would it?

Mr. BROOKS. I object to it.

Mr. MATTHEWS. I am examining the witness on his theory.

Mr. BROOKS. We say it is immaterial.

Mr. COTTER. We are inclined to exclude that question, Mr. Matthews, as long as it is objected to. That question we think we can deal with; we do not need much assistance from an expert.

Mr. MATTHEWS. I do not know but that is so, your Honor; I would like to save an exception, however.

The CHAIRMAN. I think personally it is open for you to discuss it and for us to determine it.

Mr. BROOKS. I say it is all a question of argument, finally.

Mr. MATTHEWS. It may 'be a question of argument, but——

Mr. COTTER. In order that we may be sure that we understand each other, let the question be read.

The stenographer read the question.

Mr. COTTER. It seems to us that an expert cannot be of very much assistance.

Mr. MATTHEWS. The difficulty is, your Honor, that he is testifying to some theory of capitalization, and it ought to be open to us to find out exactly how he proceeds——

Mr. COTTER. Whether a certain method would be fair or not——

The CHAIRMAN. Mr. Matthews is entitled to find on what method the witness proceeded.

Mr. MATTHEWS. The question, it seems to us, goes to the vitals of this case; perhaps not this particular question as I framed it, but the general line of inquiry. So far as evidence of earnings is to any extent admissible in this case, it is, of course, for the purpose of capitalization. Upon that branch of the case the difference——

Mr. COTTER. Let us see that we understand each other. The question now before us is whether a certain method is a fair one or not. We may be a little conceited in regard to it, but we feel that we are as competent as the witness to pass judgment upon that.

Mr. MATTHEWS. I would agree most heartily with that proposition, but are we not entitled on cross-examination to find out why the witness capitalizes the whole of the net earnings of the Company?

Mr. COTTER. Yes; we do not limit you as to that.

Mr. BROOKS. He has already stated that; that I do not object to.

Mr. MATTHEWS. I will re-form that question.

Q. It is proper, I understand, in your opinion, to pay out in dividends all the net earnings of an electric light company thus arrived at?

Mr. BROOKS. That we object to. What difference does it make whether it is proper to pay it out in dividends or not?

Mr. MATTHEWS. I would like to finish the statement that



I had begun a moment ago. The differences between the respective parties to this litigation in so far as the theory of valuation based on earnings, are these, and only these: first, we dispute that the net earnings of the Company are as large as the Company itself has endeavored to show; but there will not be very much difference between us on that point. So far as the difference between the gross income and the operating expenses is concerned, we shall claim that instead of being a given sum, as stated by the experts for the Company, it is a somewhat smaller sum. We shall then argue and endeavor to show by expert testimony that the allowance for depreciation which, according to the witness, must then be deducted from the balance that I have spoken of in order to get the net earnings of the company, should be put at a very much higher figure, a very much larger amount than is testified to by the experts for the Company. Then having reformed the operating accounts in this manner and made a proper allowance for depreciation, we get a net income, and if it is proper to capitalize the net income of a company for the purpose of reaching its valuation or as affecting its value, it is that result which we claim should be capitalized, and not, as some of the witnesses for the Company have attempted to do, the net income of the Company, meaning simply the difference between gross income and operating expenses. In other words, the point is this: What proportion or portion of the net earnings of the Company is available for dividends; that is, can inure to the benefit of the stockholders. We claim that there is a decided difference between the two; that in the case of an electric light company a very considerable portion of the net earnings (meaning the difference between gross income and operating expense) must be set aside for depreciation, as they call it, and used for extensions of the plant, in order to keep the valuation of that plant unimpaired and the assets of the Company at the point at which they start. We claim that it is the balance only after the application of a large proportion of the net earnings for depreciation that constitutes the divisible income of the Company; and that this balance is all there is that can be capitalized. This witness differs materially in his position from the other experts that have testified concerning the value of this electric light plant based on earnings. He differs materially from Mr.

Prichard, for instance. This witness allows depreciation; he does not allow enough, in our opinion, but he allows something. And it seems to us that we are entitled to exhaust the witness' theory about capitalization.

Mr. COTTER. Mr. Matthews, we did not mean to limit you at all as to the line of inquiry, but the witness' opinion whether a certain course was a fair one in reply to the question put, we did not think was quite competent for an expert or that he could assist us on that point. We did not mean to interfere with your course of examination at all.

Mr. MATTHEWS. Perhaps the form of the question is objectionable. I will consult with my colleague and endeavor to reform it.

Mr. COTTER. I meant the question which we ruled on.

Mr. GREEN. What is this last question? It seems to me this is splitting hairs over a word. Apparently, it was simply the sense which was objected to. You are simply getting at the witness' idea of the net earnings which should go into dividends.

Mr. COTTER. We have not passed on the last question. We wished to make ourselves understood as to the ground on which we sustained the objection to the other question.

The CHAIRMAN. Let me make a suggestion. The petitioner has one theory of the distribution of the income, and the respondent has another.

Mr. GOULDING. We have no theories about the distribution.

Mr. BROOKS. No, we do not care anything about it.

The CHAIRMAN. I mean to say, you earn, you claim, 40 per cent., and therefore that is the amount on which should be capitalized—that is, your actual earnings. They undertake to cut that down.

Mr. MATTHEWS. Exactly.

The CHAIRMAN. In what way they cut that down they must be allowed to show.

Mr. BROOKS. It cannot make any difference whether it is distributed to the stockholders or whether it is put into extensions of the plant. It is capital, or can be made capital.

The CHAIRMAN. I know, Mr. Brooks, but the respondent says, Here, we claim that certain things should be taken out of

the earnings, and by that means the amount be reduced. What they mean by that—the story about that—we want to hear.

Mr. BROOKS. That I agree to. If they say that the income should be reduced, for instance, by the operating expenses of the plant, I agree that that is entirely competent.

Mr. MATTHEWS. We say it should be still further reduced in order to keep your plant unimpaired; to keep your assets up to the first standard.

The CHAIRMAN. If that is your theory, go ahead and develop it. We will not say that we shall adopt it, of course.

Mr. MATTHEWS. I understand that; I should not want it understood that we had exhausted the argument, either.

The question was read, as follows: "It is proper, I understand, in your opinion, to pay out in dividends all the net earnings of an electric light company thus arrived at?"

Mr. BROOKS. If that is answered I should like to have an exception.

Mr. MATTHEWS. I will withdraw that question, in the light of the suggestions that have been made.

Q. What proportion or percentage of the net earnings of an electric light company do you consider it is proper to pay out in dividends, or can safely be paid out in dividends without an impairment of capital and assets?

Mr. BROOKS. We object to that.

The CHAIRMAN. We admit that.

Mr. BROOKS. We desire to have an exception.

Mr. GOULDING. I suppose your Honors admit it, if at all, on the ground that it may in cross-examination test this gentleman's estimate of the amount of income which should be capitalized; not as in itself evidence. Your Honors, I take it, are not going to inquire here what a board of directors should do with their surplus or their net income.

The CHAIRMAN. We are trying to get the opinion of this expert as to what disposition he would deem it safe to make of the income, what proportion he would deem it safe to pay out in dividends, and what to hold back for other purposes.

Mr. GOULDING. On the ground that that is a material question here, or merely that it goes to the value of his opinion?

Mr. COTTER. Testing his knowledge.

The CHAIRMAN. I should say on both.

Mr. GREEN. We want it for both.

The CHAIRMAN. If the counsel desire to limit it we will limit it. When this question of capitalization is raised the proposition is put forward that this corporation or any corporation concerned earns so much money. Now if it does, it does not make any difference, if the theory of the petitioner is right, whether that goes out in dividends or anything else, whether it is thrown overboard, or never used—it has earned so much, therefore that rule should apply. On the other hand, the respondent says, No; we have here \$40,000 earnings, and we cannot afford to pay that out in dividends, because so much of it must be saved for any future purposes for which it may be required. For one, it seems to me that on this doctrine of capitalization it is legitimate evidence for the respondent to put in, and I do not think it ought to be limited to testing the opinion of the witness; it ought to apply to both questions. (Consulting with Mr. Cotter.) It seems to me that where any difference of opinion arises between the Commissioners on the legal side of the case, an objection being made and one Commissioner thinking that the evidence offered ought to be excluded, the rule should be in accordance with that view. Therefore the question should be limited as Mr. Cotter suggests. To my mind the respondent ought to be allowed to go into the question just as much as the petitioner. I think it is a fair answer to the petitioner's proposition.

Mr. COTTER. I think so too; I think the respondent ought to have all the latitude of the petitioner. There is no difference at all between us as to that.

The CHAIRMAN. Oh, no.

Mr. COTTER. There was a question in my mind whether it was not safer for both parties to avoid an exception by limiting the question. I hope there will not be any difference between us.

The CHAIRMAN. Oh, no, there is no difference at all between us at all now. It may be—and counsel must not misunderstand me—it may be that you will be able to conclusively show this, Mr. Matthews—that is to say, you may be able to show that a portion of this should be held back; but to what practical pur-

pose and end you arrive I cannot at present see. I do not see that it makes any difference whether you put your \$40,000 in the shape of dividends or expand it into your plant or hold it back.

Mr. MATTHEWS. Will the Commission permit me to explain the difference again, according to our theory?

Mr. COTTER. Do you object to Mr. Burt's reading the question, so that we may be sure what we are considering?

Mr. MATTHEWS. Certainly not.

The stenographer read the question, as follows: "What proportion or percentage of the net earnings of an electric light company do you consider that it is proper to pay out in dividends, or that can safely be paid out in dividends without an impairment of capital and assets?"

Mr. COTTER. What influenced me very largely in the conclusion which I stated was that you were asking for the opinion of this witness, and it seems to me it answered your purpose if it was admitted simply as bearing upon the weight to be given to his opinion. You are dealing with his opinion; it seems to me you go far enough if your question is confined to that.

Mr. MATTHEWS. We do not wish to pursue this line of interrogation with a sole reference to the effect that his answers might have upon his qualifications as an expert in this case. We wish to pursue this line of questioning with direct reference and bearing to the issue that exists between the parties to this case in respect to what percentage or proportion of the net income of an electric light company or plant can be capitalized. Of course, upon our theory of the meaning of the municipal lighting law, the whole inquiry is irrelevant; that is, the whole question of earnings and of valuations based on earnings.

The CHAIRMAN. We understand that.

Mr. MATTHEWS. But upon the assumption according to which the Company has elected to try its case, the earnings are an important item in the valuation. The difference between the respective parties is going to be substantially this: the Company claims that it can capitalize the entire net income of the plant—I will call it a plant, because this is not an electric light company in the strict sense of the word. The Company claims that it can capitalize the entire difference between the gross income

and the operating expenses, and that it makes no difference whether it pays that difference out in dividends or puts it wholly into extensions of the plant, or pays part of it out in dividends and puts the rest into extensions of the plant. Our position, on the other hand, is this: that if the corporation pursued that policy it would become insolvent; that there is a percentage or proportion of the net earnings of the Company (meaning thereby the difference between the gross income and the operating expense) which must be put into the plant, not in lieu of distribution in dividends at the election of the directors, but must be put into the plant for the sole purpose of maintaining its value unimpaired. We maintain that if the entire net earnings of the Company, defined as I have stated, are paid out in dividends, there will be annually an increasing impairment of the capital and assets of the corporation, ending eventually in insolvency—that is, if there is any debt. That, in substance, is the difference between the parties. If we could stand upon the position that the Company does—if, for instance, we did not dispute that this whole net income was available for dividends—of course it would make no difference whether they actually paid it out in dividends or allowed it to accumulate as a cash surplus or put it into the plant; it would be profits and proper to be capitalized as such. But we maintain that there is a certain percentage of that net income which cannot be used for dividends, which cannot be stored up for a permanent surplus, which cannot be put into the plant itself, with the result of increasing the value of the plant, but which must be put into the plant, into renewals or extensions—into some portion of the plant—for the sole purpose of keeping that plant up to the value which it had at the beginning of the year. That is for the sole and exclusive purpose of keeping the assets of the Company unimpaired. We shall show that, of course, by our own witnesses. But this witness I desire to interrogate upon the subject, partly because he is a very intelligent man; he has written a great deal upon this subject; he is one of the recognized authorities in this country upon the subject of electric lighting, and he is quoted by everybody. I wish to interrogate him along those lines for that reason, and also for the reason that he differs essentially from Mr. Prichard. This witness allows something for depreciation, and I want to find out

now just exactly the effect of that opinion of his upon this question of the divisible proportion of the net earnings of the Company. We do not, of course, accept his conclusions, we think his figures differ materially from what they ought to be; but we do desire to interrogate him as to his understanding of the proper management of an electric light company or plant.

Mr. GOULDING. I don't know as we ought to claim our share of the interlocutory arguments on this question, which involves the fundamental propositions on which this case rests. This question now before the Commission is whether Mr. Foster can give his opinion on how much of the net income of the Electric Light Company should be divided among the stockholders. We say that question is totally irrelevant, whatever theory of damages you take. My friend proceeds upon the proposition which I say has no foundation in law, in common sense, or business sense, at all, that there is some rule known around in Boston or the metropolitan district that has not got out into the country—a rule by which the income of electric plants must be divided among the stockholders—the company cannot declare more than such and such a dividend. Nobody knows what an electric light company will make in any given year. Suppose it has made \$50,000 in one year and by some fortunate turn of circumstances made \$300,000 the next year. Will anybody undertake to say that some expert can come here and say as a rule how much ought to be divided as dividends? The question is, What is the net income, with the ictus on net. Between him and us there is a clear difference. He says more should be charged in this case to depreciation, and so on. But for some reason or other my friend says because we capitalize a net income, therefore, you have a right to put in an opinion of somebody upon a subject which cannot be a subject of opinion. You might as well ask an opinion of a witness in what direction he thinks a blue jay would fly over the city of Holyoke next spring. It depends upon the net income of your plant. As that solid gentleman of sense we had on the stand the other day, Mr. Sherman, said, it depends on business sense, how much did you make last year; how much increase; what is the condition of your plant; those are questions the directors debate. How is Mr. Foster whose eulogy I would endorse—how is he to pass upon

the question of how much net income you are going to divide among the stockholders. Evidently, the question is this, that he thinks we claim we have an absolute measure and test by capitalizing the net income. I understand the capitalization of the net income as a piece of evidence is merely evidence. It does not control anybody, any more than the opinion of experts control them. It is evidence. It is not test and measure. We say we have shown you we can earn an income of \$25,000 right along. Taking out all things that should be charged to operating expenses, we show a net income. We say that capitalized at a certain per cent. will produce so much. Therefore, we argue that is good evidence of the value of that property. Not as test, but evidence. It does not authorize you to introduce the opinion of anybody, however able, as to the business question which has no relation to the issue before you.

The CHAIRMAN. It seems to me, Mr. Matthews, that is right; that this present question is not competent. That it would not hurt you in the omission; that it does not make much difference what the common practice or custom is on the part of those witnesses as to any method. That depends on the action of each particular company as to the amount of dividends they shall pay. That does not interfere with your going forward and showing how much this particular company pays.

Mr. GOULDING. I do not object to the question limited in that way, to test the man's opinion. You say under your figures you have an income of \$40,000, or \$30,000. Do you think you can treat that as an income which you could divide among stockholders, with a view to test his opinion, but not as to how much ought to be divided?

The CHAIRMAN. Under Mr. Cotter's notion this question may be admitted as a test of his opinion. Beyond that, I don't see the availability of it. I want you to understand they can take the particular company in hand and show what its history has been in reference to the use of money and that evidence will be admissible. You have the books and past history, and know in effect what they have done with their money. It might be that rule would be extended to apply to general custom. In so far, I think, on hearing the discussion, as to allowing this witness, or any other witness, to pass upon the material proposition as to



the amount that ought to be paid out in dividends, I don't see as it helps much in your favor.

Mr. MATTHEWS. I would like to add this: That the only test that all the expert witnesses for the company have adopted to reach their higher valuations is to take the net income. It seems to me we are entitled to find out why they capitalize the net earnings, and what they mean by net earnings proper for capitalization and what proportion of net earnings, proper to be capitalized, bears in their opinion to the total net earnings of the company? The question as your Honor has it, taken down by the stenographer, is not what the practice is, but his opinion.

The CHAIRMAN. We will admit this question upon the ground indicated, that the matter is going to his knowledge, and as bearing on the opinion he has stated already.

Mr. MATTHEWS. As bearing on this estimate of value: Is that the scope of the decision?

The CHAIRMAN. Yes, I think so. You may ask that question.

Mr. BROOKS. Except so far as confined to testing the witness, we would like to save an exception.

Mr. MATTHEWS. I understand it is to be admitted as affecting the estimate of value which this witness has already given, the opinion he has expressed on direct examination as to the value of this electric light property; and that we are satisfied with.

The CHAIRMAN. I don't think it is a material proposition to ask how much they would pay, or ought to pay. It may be incidentally in the cross-examination you will bring it out.

Mr. GREEN. I want to make a suggestion at this time. I have attempted to once or twice. It seems to me we have overlooked some of the testimony which has gone in in the past. We have had testimony which has come from their experts to the following effect. They say a certain value should be placed upon this property because it can be capitalized at a certain per cent. They say it can be capitalized for that amount because it will pay out dividends of four or five per cent. on that amount. They say that the capital stock is worth a certain sum because it will sell for that sum in the market. I say there has been a juggling with the expression "net income" as bearing on its capacity to give valuation to this plant. As bearing on the testimony as

to what two or three of the experts have already distinctly said that this income could be capitalized at, it seems to me we have a right to find out from this witness what proportion of this so-called net income can be paid in dividends. Because other experts have said that the value of this plant is to be determined by the dividend-bearing power of that net income. If that is not all dividend bearing then the value cannot be taken from the whole "net income." We are obliged to talk of a certain sum, which they have been pleased to call "net income" heretofore, and which is in the record under the term "net income." Mr. Fowler, on the stand at Boston, based the valuation of the gas plant upon the fact that a certain amount of money, which in the rough was called "net income," could be paid out in dividends, and the stock would be salable in the market on a five per cent. basis, but when we come to analyze with him on the stand what he meant by "net income," he said distinctly you could not apply to dividend all the so-called net income; you would have to discount one-quarter or so. I fail to see why we cannot inquire of this witness what is the true net income, or to take the terms they have already used, and they have called this \$20,000 net income, what proportion is to be paid out in dividends, because on the theory they announced of this dividend result, and from which they fix the value of this property——

The CHAIRMAN. Is that so?

Mr. GREEN. I understood them to say so. I think my brother will agree with me that it has been so enunciated by Mr. Sherman. Mr. Fowler gave the same explanation for instance, that when stock pays ten per cent. it is about a \$250 stock. On that basis he says this property would be worth what we can capitalize the dividends at on a five per cent. basis.

The CHAIRMAN. You do not seem to understand my meaning in this matter. We will say this Company had, after paying its ordinary expenses, a net income of \$40,000. Now, the petitioner says that should be divided by 4 or 5 per cent., and that is the value of the plant upon the theory of some of their experts. You say, Oh no, that \$40,000 ought not to be divided, because, perchance, some of it should go into keeping the plant built up. We have not limited you to show how much should go into the plant of that \$40,000, or how much of it should be reduced, but

this is a question where you ask the opinion of an expert, as to how much in his opinion of that \$40,000 should or should not be paid out in dividends. That calls for an opinion that it does not seem we ought to admit. But practically, if you want to show how much has been expended of this \$40,000, or how much is liable to be expended, in keeping up this property, that I do not think I for one could limit. Is that your view, Mr. Cotter?

Mr. COTTER. Yes.

The CHAIRMAN. Therefore our relation to this does not disturb your situation. It is a practical question. If they have got \$40,000, if they have earned \$40,000, and if they pay out \$20,000 in order to keep the property in good condition, it will be argued that the more of this income they put into the plant, the more valuable the whole property becomes, so that they claim that one hand washes the other.

Mr. BROOKS. I desire to say that all the testimony given by Mr. Sherman, or Mr. Fowler, was called out on cross-examination under our objection.

The CHAIRMAN. We simply say you could not ask this witness as to how much could be paid out in dividends, because that varies a good deal. One man has one notion, and another another. One board of directors would think one thing, and another another, as to how much of this \$40,000 should be paid out, or should not be paid out. So you may ask him, if you want to, ought \$10,000, or \$15,000, or \$20,000 to be paid into the plant to keep it up. But on this specific question we say it is not competent to ask this question as to how much should be paid out in dividends.

Mr. MATTHEWS. Will the Chairman kindly read over the question as I have re-formed it? I have omitted part of it.

The CHAIRMAN. I have discussed this matter as much as I want to. We will admit the question on cross-examination.

Mr. MATTHEWS. We desire to except to the limitations.

The CHAIRMAN. We do not limit you. We have admitted the question.

Mr. BROOKS. We object to this question. We say this is a good deal worse than the original.

By Mr. MATTHEWS.

Q. "What proportion or percentage of the net earnings of an

electric light company do you consider can safely be paid out in dividends without impairment of capital or assets?" That is the form in which I desire to put the question. Now I understand that that question is admitted as bearing upon the qualifications of the witness.

The CHAIRMAN. Yes, we will leave that there, unless counsel desire the discussion to be extended.

Mr. MATTHEWS. We desire to except if any limitation is to be put on the question.

The CHAIRMAN. Let me add that the Commission said at the time of making this limitation that it did not apply to the employment of any part of the net income, either by the Company, or in the judgment of a competent expert for adding to the permanent expenditures of the plant. Upon the last question we reserve our ruling until it comes up.

Mr. MATTHEWS. Mr. Witness, will you answer the question?

Mr. COTTER. Does the other side object?

Mr. BROOKS. Not with the limitation.

The WITNESS. I would like to have question read.

(Question read by the stenographer.)

Mr. BROOKS. Is that an electric light company?

Mr. MATTHEWS. An electric light company.

The WITNESS. May I explain?

By Mr. MATTHEWS.

Q. You may answer it any way you see fit, Mr. Foster.

A. It seems to me that net earnings are specific, that net earnings means you have deducted from present earnings everything, operating expenses, or fixed charges, and included in operating expenses I mean money that is necessary to keep that plant in perfect shape, and therefore that all your so-called net earnings, so defined, can be distributed in any way, shape or manner that the directors may see fit.

Q. I will ask you, then, what proportion or percentage of the net earnings of an electric light company, meaning by net earnings the difference between the gross income and operating expenses pure and simple, must or ought to be turned into the plant, or into extensions of it, for the purpose of keeping the capital or assets unimpaired?

Mr. BROOKS. That we object to.

Mr. MATTHEWS. That is practically the question that the Commission suggested.

Mr. BROOKS. ' I don't think so.

The CHAIRMAN. We will admit the question.

Mr. BROOKS. We would like to except.

Q. Mr. Foster, can you answer that?

The WITNESS. I would like to have it read.

(Question read by the stenographer.)

Mr. BROOKS. This is simply a collateral matter. If they take this particular plant, we should withdraw our objection. But when they ask him the general question with reference to an electric light plant, we say it is not competent even on cross-examination for any purpose, either as testing the witness, or as material upon the issue that is involved. It merely means a going into the various light plants, and a consideration of how they are kept up, and what is done with them, how the money is spent, and so on.

The CHAIRMAN. We admit the question.

Mr. BROOKS. And we except.

The WITNESS. May the question be read again?

(Question read by the stenographer.)

The WITNESS. The only answer that I can give that is, that after turning in an amount which may be determined as the depreciation, and if the plant has been kept up to proper condition by money paid out for repairs, I do not see that there is any necessity of setting aside any amount to save impairment of capital. It seems to me that that is covered entirely by depreciation, or by the charge we have made for depreciation, and by the charge of operating expenses made in repairs and in keeping the plant entirely up-to-date. I always supposed that that is included in the operating expenses. It is, I think, only reasonable, in a well operated plant, and I think that is always included, that repairs and all the money spent for repairs is to keep the plant in working order, and then, if you charge anything extra for depreciation, you charge all that needs to be charged.

Q. Can you state what percentage of the net earnings of the company, meaning thereby not what you have defined that expression to be, but meaning the difference between the gross in-

come and operating expenses, pure and simple, should be allowed for this item of depreciation?

Mr. BROOKS. I object to that. I do not understand the question, for one reason.

The WITNESS. I don't know.

Q. I understand you to say that you couldn't state the percentage? A. I don't know any way of stating such a thing.

Q. That is, you have never figured it out that way? A. Never.

Q. Can you state what percentage of the gross income of the company, meaning its receipts from sales of electricity for light or power or other purposes, should be annually set aside for depreciation? A. No.

Q. Have you ever made calculations upon that basis? A. Never.

Q. Have you ever expressed an opinion as to the percentage of the gross income of an electric light company which ought to be assigned or set aside for depreciation annually? A. I don't remember of ever doing such a thing. I have no recollection whatever of it.

Q. You have stated your opinion as to the percentage of the capital or investment or cost of the plant that should be set aside annually for depreciation? A. Yes, I think I have.

Q. But you think you have never expressed an opinion as to the percentage of gross income which should be set aside for that purpose? A. I don't remember. I don't recall any such thing.

Q. Are you familiar with the practice of electric light companies in Massachusetts in that particular? A. No.

Q. You have made no investigation of that subject? A. None whatever.

Q. Have you made any estimate as to the cost of running this plant by steam alone? A. In a measure, yes.

Q. And what results have you reached? A. I think my result is simply given— You mean under present conditions?

Q. I mean in any way. Answer it in your own way. A. I have made a calculation here based on the present plant under the present conditions and with the present machinery.

Q. Have you that in tabulated form, and copied, so that I can

have one? A. No, it is only in pencil. I figured it out roughly in pencil.

Q. Perhaps you can read it to the stenographer. A. Yes. I want to explain what it is first.

Q. Certainly; explain it at length. A. In connection with this plant there are certain charges that are common to both steam and water. Those I have neglected in this particular calculation, showing only such charges as would be on account of steam alone. That is, they would be in addition to the common charges, or to the charges that are common to either method of running; and I will state these charges, if you please.

Q. Let me see. Those are the charges common to both?

A. No, not charges common to both. I have neglected those entirely.

Q. Go ahead. A. The total running time is 365 days, less half of the Sundays, as the plant does not run but half of the day Sunday, making 339 days of 24 hours each.

Q. Wait a moment. It is the whole year less half the Sundays? A. Less half the Sundays, 26 days. 339 days of 24 hours each. The average horse power, as indicated by a test made a short time ago, was 231 horse power at the cylinder of the engine.

By the CHAIRMAN.

Q. What do you mean by that? That is the amount used?

A. That was the average amount used for an entire day of 24 hours.

By Mr. MATTHEWS.

Q. That was when the water was off entirely and the plant was being run by steam? A. The plant run by steam, as now used.

Q. Was that taken for a day in winter? A. Yes.

Q. That would represent, then, the maximum load in winter on the plant? A. Not necessarily. While it was perhaps more than the average load, I do not think that it was the heaviest load. The heaviest load comes around Christmas.

Q. I do not want to interrupt your explanation, but do I understand you that that was the result of an actual test made upon one particular day? A. It was.

Q. What day? A. I don't remember the date.

By the CHAIRMAN.

Q. What time of year? A. Wait a minute. I may be able to give you the date.

By Mr. MATTHEWS.

Q. If you can, please.

Mr. MATTHEWS. The witness evidently cannot get through his explanation before quarter of 1, so perhaps it would be well to adjourn here and give him time to look up his minutes.

The WITNESS. I have the date right here.

Q. If you will just state the date. A. Jan. 9 and 10, 1899.

The CHAIRMAN. Then we will stop until 2 o'clock.

(Recess).





